

ServerView Resource Orchestrator Virtual Edition V3.1.0



Setup Guide

Windows/Linux

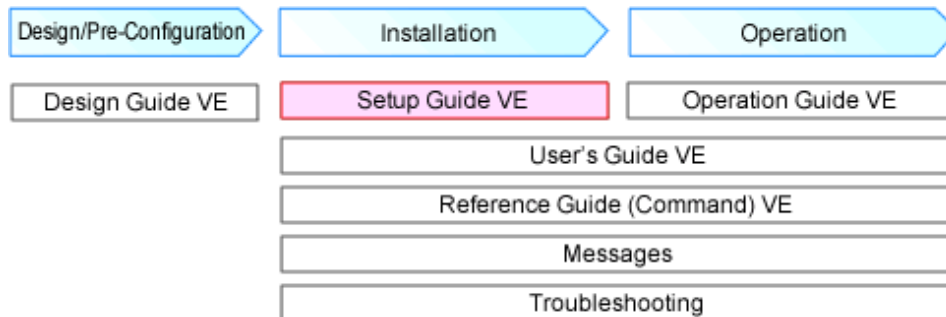
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July 2012

Preface

Resource Orchestrator Documentation Road Map

The documentation road map for Resource Orchestrator is as shown below.

Resource Orchestrator Documentation Road Map



For information about the documents for Resource Orchestrator, refer to "Chapter 1 Documentation Road Map" in the "Design Guide VE".

Purpose

This manual provides information on the operations and settings required for setup of ServerView Resource Orchestrator (hereinafter Resource Orchestrator).

Target Readers

This manual is written for people who will install Resource Orchestrator.

When setting up systems, it is assumed that readers have the basic knowledge required to configure the servers, storage, and network devices to be installed.

Organization

This manual is composed as follows:

[Chapter 1 Flow of Setup for Resource Orchestrator](#)

Explains the overall flow of setup operations when using Resource Orchestrator.

[Chapter 2 Installation](#)

Explains how to install Resource Orchestrator.

[Chapter 3 Login to the ROR Console](#)

Explains how to open and close the ROR console.

[Chapter 4 License Setup and Confirmation](#)

Explains how to set up and confirm the licenses necessary to use Resource Orchestrator.

[Chapter 5 Registering Resources with Resource Orchestrator](#)

Explains how to register, change, and delete resources used by Resource Orchestrator.

[Chapter 6 Settings for the HBA address rename Setup Service](#)

Explains how to configure the HBA address rename setup service.

[Chapter 7 Installing Software and Registering Agents on Managed Servers](#)

Explains the installation of software and registration of agents on managed servers.

Chapter 8 Configuring Monitoring Information

Explains how to configure monitoring information.

Chapter 9 Server Switchover Settings

Explains the settings and usage of the server switchover function.

Chapter 10 Saving Environment Settings

Explains how to save environment settings.

Chapter 11 Uninstallation

Explains how to uninstall Resource Orchestrator.

Appendix A Coordination with Other Products

Explains how to coordinate use of Resource Orchestrator and other products.

Appendix B Co-Existence with ServerView Deployment Manager

Explains how to use both Resource Orchestrator and ServerView Deployment Manager on the same network.

Appendix C Advisory Notes for Environments with Systemwalker Centric Manager or ETERNUS SF Storage Cruiser

Explains advisory notes regarding use of Resource Orchestrator with Systemwalker Centric Manager or ETERNUS SF Storage Cruiser.

Appendix D Manager Cluster Operation Settings and Deletion

Explains the settings necessary when using Resource Orchestrator on cluster systems, and the method for deleting Resource Orchestrator from cluster systems.

Appendix E Upgrading from Earlier Versions

Explains how to upgrade from earlier versions of Resource Coordinator.

Appendix F Compatibility with Earlier Versions

Explains compatibility with earlier versions of Resource Orchestrator.

Glossary

Explains the terms used in this manual. Please refer to it when necessary.

Notational Conventions

The notation in this manual conforms to the following conventions.

- When using Resource Orchestrator and the functions necessary differ due to the necessary basic software (OS), it is indicated as follows:

[Windows Manager]	Sections related to Windows manager
[Linux Manager]	Sections related to Linux manager
[Windows]	Sections related to Windows (When not using Hyper-V)
[Linux]	Sections related to Linux
[Red Hat Enterprise Linux]	Sections related to Red Hat Enterprise Linux
[Solaris]	Sections related to Solaris or Solaris Containers
[VMware]	Sections related to VMware
[Hyper-V]	Sections related to Hyper-V
[Xen]	Sections related to Xen
[KVM]	Sections related to RHEL-KVM
[Solaris Containers]	Sections related to Solaris containers
[Physical Servers]	Sections related to physical servers

[VM host]	Sections related to VMware, Windows Server 2008 with Hyper-V enabled, Xen, RHEL-KVM, and Solaris containers
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- Unless specified otherwise, the blade servers mentioned in this manual refer to PRIMERGY BX servers.
- Oracle Solaris may also be indicated as Solaris, Solaris Operating System, or Solaris OS.
- References and character strings or values requiring emphasis are indicated using double quotes (").
- Window names, dialog names, menu names, and tab names are shown enclosed by brackets ([]).
- Button names are shown enclosed by angle brackets (< >) or square brackets ([]).
- The order of selecting menus is indicated using []-[] .
- Text to be entered by the user is indicated using bold text.
- Variables are indicated using italic text and underscores.
- The ellipses ("...") in menu names, indicating settings and operation window startup, are not shown.
- The ">" used in Windows is included in usage examples. When using Linux, read ">" as meaning "#".
- The URLs in this manual were correct when the manual was written.

Menus in the ROR console

Operations on the ROR console can be performed using either the menu bar or pop-up menus. By convention, procedures described in this manual only refer to pop-up menus.

Abbreviations

The following abbreviations are used in this manual:

Abbreviation	Products
Windows	Microsoft(R) Windows Server(R) 2008 Standard Microsoft(R) Windows Server(R) 2008 Enterprise Microsoft(R) Windows Server(R) 2008 R2 Standard Microsoft(R) Windows Server(R) 2008 R2 Enterprise Microsoft(R) Windows Server(R) 2008 R2 Datacenter Microsoft(R) Windows Server(R) 2003 R2, Standard Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise Edition Microsoft(R) Windows Server(R) 2003 R2, Standard x64 Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise x64 Edition Windows(R) 7 Professional Windows(R) 7 Ultimate Windows Vista(R) Business Windows Vista(R) Enterprise Windows Vista(R) Ultimate Microsoft(R) Windows(R) XP Professional operating system
Windows Server 2008	Microsoft(R) Windows Server(R) 2008 Standard Microsoft(R) Windows Server(R) 2008 Enterprise Microsoft(R) Windows Server(R) 2008 R2 Standard Microsoft(R) Windows Server(R) 2008 R2 Enterprise Microsoft(R) Windows Server(R) 2008 R2 Datacenter
Windows 2008 x86 Edition	Microsoft(R) Windows Server(R) 2008 Standard (x86) Microsoft(R) Windows Server(R) 2008 Enterprise (x86)
Windows 2008 x64 Edition	Microsoft(R) Windows Server(R) 2008 Standard (x64) Microsoft(R) Windows Server(R) 2008 Enterprise (x64)

Abbreviation	Products
Windows Server 2003	Microsoft(R) Windows Server(R) 2003 R2, Standard Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise Edition Microsoft(R) Windows Server(R) 2003 R2, Standard x64 Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise x64 Edition
Windows 2003 x64 Edition	Microsoft(R) Windows Server(R) 2003 R2, Standard x64 Edition Microsoft(R) Windows Server(R) 2003 R2, Enterprise x64 Edition
Windows 7	Windows(R) 7 Professional Windows(R) 7 Ultimate
Windows Vista	Windows Vista(R) Business Windows Vista(R) Enterprise Windows Vista(R) Ultimate
Windows XP	Microsoft(R) Windows(R) XP Professional operating system
Windows PE	Microsoft(R) Windows(R) Preinstallation Environment
Linux	Red Hat(R) Enterprise Linux(R) AS (v.4 for x86) Red Hat(R) Enterprise Linux(R) ES (v.4 for x86) Red Hat(R) Enterprise Linux(R) AS (v.4 for EM64T) Red Hat(R) Enterprise Linux(R) ES (v.4 for EM64T) Red Hat(R) Enterprise Linux(R) AS (4.5 for x86) Red Hat(R) Enterprise Linux(R) ES (4.5 for x86) Red Hat(R) Enterprise Linux(R) AS (4.5 for EM64T) Red Hat(R) Enterprise Linux(R) ES (4.5 for EM64T) Red Hat(R) Enterprise Linux(R) AS (4.6 for x86) Red Hat(R) Enterprise Linux(R) ES (4.6 for x86) Red Hat(R) Enterprise Linux(R) AS (4.6 for EM64T) Red Hat(R) Enterprise Linux(R) ES (4.6 for EM64T) Red Hat(R) Enterprise Linux(R) AS (4.7 for x86) Red Hat(R) Enterprise Linux(R) ES (4.7 for x86) Red Hat(R) Enterprise Linux(R) AS (4.7 for EM64T) Red Hat(R) Enterprise Linux(R) ES (4.7 for EM64T) Red Hat(R) Enterprise Linux(R) AS (4.8 for x86) Red Hat(R) Enterprise Linux(R) ES (4.8 for x86) Red Hat(R) Enterprise Linux(R) AS (4.8 for EM64T) Red Hat(R) Enterprise Linux(R) ES (4.8 for EM64T) Red Hat(R) Enterprise Linux(R) 5 (for x86) Red Hat(R) Enterprise Linux(R) 5 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.1 (for x86) Red Hat(R) Enterprise Linux(R) 5.1 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.2 (for x86) Red Hat(R) Enterprise Linux(R) 5.2 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.3 (for x86) Red Hat(R) Enterprise Linux(R) 5.3 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.4 (for x86) Red Hat(R) Enterprise Linux(R) 5.4 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.5 (for x86) Red Hat(R) Enterprise Linux(R) 5.5 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.6 (for x86) Red Hat(R) Enterprise Linux(R) 5.6 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.7 (for x86) Red Hat(R) Enterprise Linux(R) 5.7 (for Intel64) Red Hat(R) Enterprise Linux(R) 6 (for x86) Red Hat(R) Enterprise Linux(R) 6 (for Intel64) Red Hat(R) Enterprise Linux(R) 6.1 (for x86) Red Hat(R) Enterprise Linux(R) 6.1 (for Intel64) Red Hat(R) Enterprise Linux(R) 6.2 (for x86)

Abbreviation	Products
	<p>Red Hat(R) Enterprise Linux(R) 6.2 (for Intel64) SUSE(R) Linux Enterprise Server 10 Service Pack2 for x86 SUSE(R) Linux Enterprise Server 10 Service Pack2 for EM64T SUSE(R) Linux Enterprise Server 10 Service Pack3 for x86 SUSE(R) Linux Enterprise Server 10 Service Pack3 for EM64T SUSE(R) Linux Enterprise Server 11 for x86 SUSE(R) Linux Enterprise Server 11 for EM64T SUSE(R) Linux Enterprise Server 11 Service Pack1 for x86 SUSE(R) Linux Enterprise Server 11 Service Pack1 for EM64T Oracle Enterprise Linux Release 5 Update 4 for x86 (32 Bit) Oracle Enterprise Linux Release 5 Update 4 for x86_64 (64 Bit) Oracle Enterprise Linux Release 5 Update 5 for x86 (32 Bit) Oracle Enterprise Linux Release 5 Update 5 for x86_64 (64 Bit)</p>
Red Hat Enterprise Linux	<p>Red Hat(R) Enterprise Linux(R) AS (v.4 for x86) Red Hat(R) Enterprise Linux(R) ES (v.4 for x86) Red Hat(R) Enterprise Linux(R) AS (v.4 for EM64T) Red Hat(R) Enterprise Linux(R) ES (v.4 for EM64T) Red Hat(R) Enterprise Linux(R) AS (4.5 for x86) Red Hat(R) Enterprise Linux(R) ES (4.5 for x86) Red Hat(R) Enterprise Linux(R) AS (4.5 for EM64T) Red Hat(R) Enterprise Linux(R) ES (4.5 for EM64T) Red Hat(R) Enterprise Linux(R) AS (4.6 for x86) Red Hat(R) Enterprise Linux(R) ES (4.6 for x86) Red Hat(R) Enterprise Linux(R) AS (4.6 for EM64T) Red Hat(R) Enterprise Linux(R) ES (4.6 for EM64T) Red Hat(R) Enterprise Linux(R) AS (4.7 for x86) Red Hat(R) Enterprise Linux(R) ES (4.7 for x86) Red Hat(R) Enterprise Linux(R) AS (4.7 for EM64T) Red Hat(R) Enterprise Linux(R) ES (4.7 for EM64T) Red Hat(R) Enterprise Linux(R) AS (4.8 for x86) Red Hat(R) Enterprise Linux(R) ES (4.8 for x86) Red Hat(R) Enterprise Linux(R) AS (4.8 for EM64T) Red Hat(R) Enterprise Linux(R) ES (4.8 for EM64T) Red Hat(R) Enterprise Linux(R) 5 (for x86) Red Hat(R) Enterprise Linux(R) 5 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.1 (for x86) Red Hat(R) Enterprise Linux(R) 5.1 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.2 (for x86) Red Hat(R) Enterprise Linux(R) 5.2 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.3 (for x86) Red Hat(R) Enterprise Linux(R) 5.3 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.4 (for x86) Red Hat(R) Enterprise Linux(R) 5.4 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.5 (for x86) Red Hat(R) Enterprise Linux(R) 5.5 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.6 (for x86) Red Hat(R) Enterprise Linux(R) 5.6 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.7 (for x86) Red Hat(R) Enterprise Linux(R) 5.7 (for Intel64) Red Hat(R) Enterprise Linux(R) 6 (for x86) Red Hat(R) Enterprise Linux(R) 6 (for Intel64) Red Hat(R) Enterprise Linux(R) 6.1 (for x86) Red Hat(R) Enterprise Linux(R) 6.1 (for Intel64) Red Hat(R) Enterprise Linux(R) 6.2 (for x86) Red Hat(R) Enterprise Linux(R) 6.2 (for Intel64)</p>

Abbreviation	Products
Red Hat Enterprise Linux 5	Red Hat(R) Enterprise Linux(R) 5 (for x86) Red Hat(R) Enterprise Linux(R) 5 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.1 (for x86) Red Hat(R) Enterprise Linux(R) 5.1 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.2 (for x86) Red Hat(R) Enterprise Linux(R) 5.2 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.3 (for x86) Red Hat(R) Enterprise Linux(R) 5.3 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.4 (for x86) Red Hat(R) Enterprise Linux(R) 5.4 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.5 (for x86) Red Hat(R) Enterprise Linux(R) 5.5 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.6 (for x86) Red Hat(R) Enterprise Linux(R) 5.6 (for Intel64) Red Hat(R) Enterprise Linux(R) 5.7 (for x86) Red Hat(R) Enterprise Linux(R) 5.7 (for Intel64)
Red Hat Enterprise Linux 6	Red Hat(R) Enterprise Linux(R) 6 (for x86) Red Hat(R) Enterprise Linux(R) 6 (for Intel64) Red Hat(R) Enterprise Linux(R) 6.1 (for x86) Red Hat(R) Enterprise Linux(R) 6.1 (for Intel64) Red Hat(R) Enterprise Linux(R) 6.2 (for x86) Red Hat(R) Enterprise Linux(R) 6.2 (for Intel64)
RHEL-KVM	Red Hat(R) Enterprise Linux(R) 6.1 (for x86) Virtual Machine Function Red Hat(R) Enterprise Linux(R) 6.1 (for Intel64) Virtual Machine Function Red Hat(R) Enterprise Linux(R) 6.2 (for x86) Virtual Machine Function Red Hat(R) Enterprise Linux(R) 6.2 (for Intel64) Virtual Machine Function
Xen	Citrix XenServer(TM) 5.5 Citrix Essentials(TM) for XenServer 5.5, Enterprise Edition Red Hat(R) Enterprise Linux(R) 5.3 (for x86) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.3 (for Intel64) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.4 (for x86) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.4 (for Intel64) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.5 (for x86) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.5 (for Intel64) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.6 (for x86) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.6 (for Intel64) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.7 (for x86) Linux Virtual Machine Function Red Hat(R) Enterprise Linux(R) 5.7 (for Intel64) Linux Virtual Machine Function
DOS	Microsoft(R) MS-DOS(R) operating system, DR DOS(R)
SUSE Linux Enterprise Server	SUSE(R) Linux Enterprise Server 10 Service Pack2 for x86 SUSE(R) Linux Enterprise Server 10 Service Pack2 for EM64T SUSE(R) Linux Enterprise Server 10 Service Pack3 for x86 SUSE(R) Linux Enterprise Server 10 Service Pack3 for EM64T SUSE(R) Linux Enterprise Server 11 for x86 SUSE(R) Linux Enterprise Server 11 for EM64T SUSE(R) Linux Enterprise Server 11 Service Pack1 for x86 SUSE(R) Linux Enterprise Server 11 Service Pack1 for EM64T
Oracle Enterprise Linux	Oracle Enterprise Linux Release 5 Update 4 for x86 (32 Bit) Oracle Enterprise Linux Release 5 Update 4 for x86_64 (64 Bit) Oracle Enterprise Linux Release 5 Update 5 for x86 (32 Bit) Oracle Enterprise Linux Release 5 Update 5 for x86_64 (64 Bit)
Solaris	Solaris(TM) 10 Operating System

Abbreviation	Products
SCVMM	System Center Virtual Machine Manager 2008 R2 System Center 2012 Virtual Machine Manager
VMware	VMware(R) Infrastructure 3 VMware vSphere(R) 4 VMware vSphere(R) 4.1 VMware vSphere(R) 5
VMware ESX	VMware(R) ESX(R)
VMware ESX 4	VMware(R) ESX(R) 4
VMware ESXi	VMware(R) ESXi(TM)
VMware ESXi 5.0	VMware(R) ESXi(TM) 5.0
VMware Infrastructure 3	VMware(R) Infrastructure 3
VMware Infrastructure Client	VMware(R) Infrastructure Client
VMware vSphere 4.0	VMware vSphere(R) 4.0
VMware vSphere 4.1	VMware vSphere(R) 4.1
VMware vSphere 5	VMware vSphere(R) 5
VMware vSphere Client	VMware vSphere(R) Client
VMware vCenter Server	VMware(R) vCenter(TM) Server
VMware vClient	VMware(R) vClient(TM)
VIOM	ServerView Virtual-IO Manager
ServerView Agent	ServerView SNMP Agents for MS Windows (32bit-64bit) ServerView Agents Linux ServerView Agents VMware for VMware ESX Server
Excel	Microsoft(R) Office Excel(R) 2010 Microsoft(R) Office Excel(R) 2007 Microsoft(R) Office Excel(R) 2003
Excel 2010	Microsoft(R) Office Excel(R) 2010
Excel 2007	Microsoft(R) Office Excel(R) 2007
Excel 2003	Microsoft(R) Office Excel(R) 2003
RCVE	ServerView Resource Coordinator VE
ROR	ServerView Resource Orchestrator
ROR VE	ServerView Resource Orchestrator Virtual Edition
ROR CE	ServerView Resource Orchestrator Cloud Edition
Resource Coordinator	Systemwalker Resource Coordinator
Resource Coordinator VE	ServerView Resource Coordinator VE Systemwalker Resource Coordinator Virtual server Edition
Resource Orchestrator	ServerView Resource Orchestrator

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Contents

Chapter 1 Flow of Setup for Resource Orchestrator.....	1
Chapter 2 Installation.....	5
2.1 Manager Installation.....	5
2.1.1 Preparations.....	5
2.1.1.1 Software Preparation and Checks.....	5
2.1.1.2 Collecting and Checking Required Information.....	10
2.1.1.3 Configuration Parameter Checks.....	13
2.1.2 Installation [Windows Manager].....	14
2.1.3 Installation [Linux Manager].....	14
2.2 Agent Installation.....	16
2.2.1 Preparations.....	16
2.2.1.1 Software Preparation and Checks.....	16
2.2.1.2 Collecting and Checking Required Information.....	21
2.2.2 Installation [Windows] [Hyper-V].....	22
2.2.3 Installation [Linux] [VMware] [Xen] [KVM] [Oracle VM].....	25
2.2.4 Installation [Solaris].....	26
2.3 HBA address rename setup service Installation.....	27
2.3.1 Preparations.....	27
2.3.1.1 Software Preparation and Checks.....	28
2.3.1.2 Collecting and Checking Required Information.....	28
2.3.2 Installation [Windows].....	28
2.3.3 Installation [Linux].....	29
Chapter 3 Login to the ROR Console.....	31
Chapter 4 License Setup and Confirmation.....	33
Chapter 5 Registering Resources with Resource Orchestrator.....	34
5.1 Managed Resources and Registration Order.....	34
Chapter 6 Settings for the HBA address rename Setup Service.....	36
Chapter 7 Installing Software and Registering Agents on Managed Servers.....	38
Chapter 8 Configuring Monitoring Information.....	41
Chapter 9 Server Switchover Settings.....	43
9.1 Overview.....	43
9.2 Configuration.....	45
9.3 Server Switchover Conditions.....	48
9.4 Conditions Required for Auto-Recovery.....	49
Chapter 10 Saving Environment Settings.....	51
Chapter 11 Uninstallation.....	52
11.1 Uninstall the Manager.....	52
11.1.1 Preparations.....	52
11.1.2 Uninstallation [Windows Manager].....	53
11.1.3 Uninstallation [Linux Manager].....	53
11.2 Agent Uninstallation.....	54
11.2.1 Uninstallation [Windows] [Hyper-V].....	54
11.2.2 Uninstallation [Linux] [VMware] [Xen] [KVM] [Oracle VM].....	55
11.2.3 Uninstallation [Solaris].....	56
11.3 HBA address rename Setup Service Uninstallation.....	57
11.3.1 Uninstallation [Windows].....	57
11.3.2 Uninstallation [Linux].....	58

11.4 Uninstallation of "Uninstall (Middleware)"	59
Appendix A Coordination with Other Products	61
A.1 Coordination with BMC BladeLogic Server Automation	61
A.2 Sending SNMP Traps	64
A.2.1 SNMP Trap Settings Using CA Spectrum	66
Appendix B Co-Existence with ServerView Deployment Manager	69
B.1 Overview	69
B.2 Restricted Functions	70
Appendix C Advisory Notes for Environments with Systemwalker Centric Manager or ETERNUS SF Storage Cruiser	71
Appendix D Manager Cluster Operation Settings and Deletion	73
D.1 What are Cluster Systems	73
D.2 Installation	74
D.2.1 Preparations	74
D.2.2 Installation	76
D.3 Set	77
D.3.1 Configuration [Windows Manager]	77
D.3.2 Configuration [Linux Manager]	93
D.4 Releasing Configuration	101
D.4.1 Releasing Configuration [Windows Manager]	101
D.4.2 Releasing Configuration [Linux Manager]	103
D.5 Advisory Notes	108
Appendix E Upgrading from Earlier Versions	110
E.1 Overview	110
E.2 Manager	110
E.3 Agent	117
E.4 Client	122
E.5 HBA address rename setup service	122
Appendix F Compatibility with Earlier Versions	125
F.1 Maintaining Compatibility with Earlier Versions	125
F.1.1 Editing the Home Messages	125
Glossary	128

Chapter 1 Flow of Setup for Resource Orchestrator

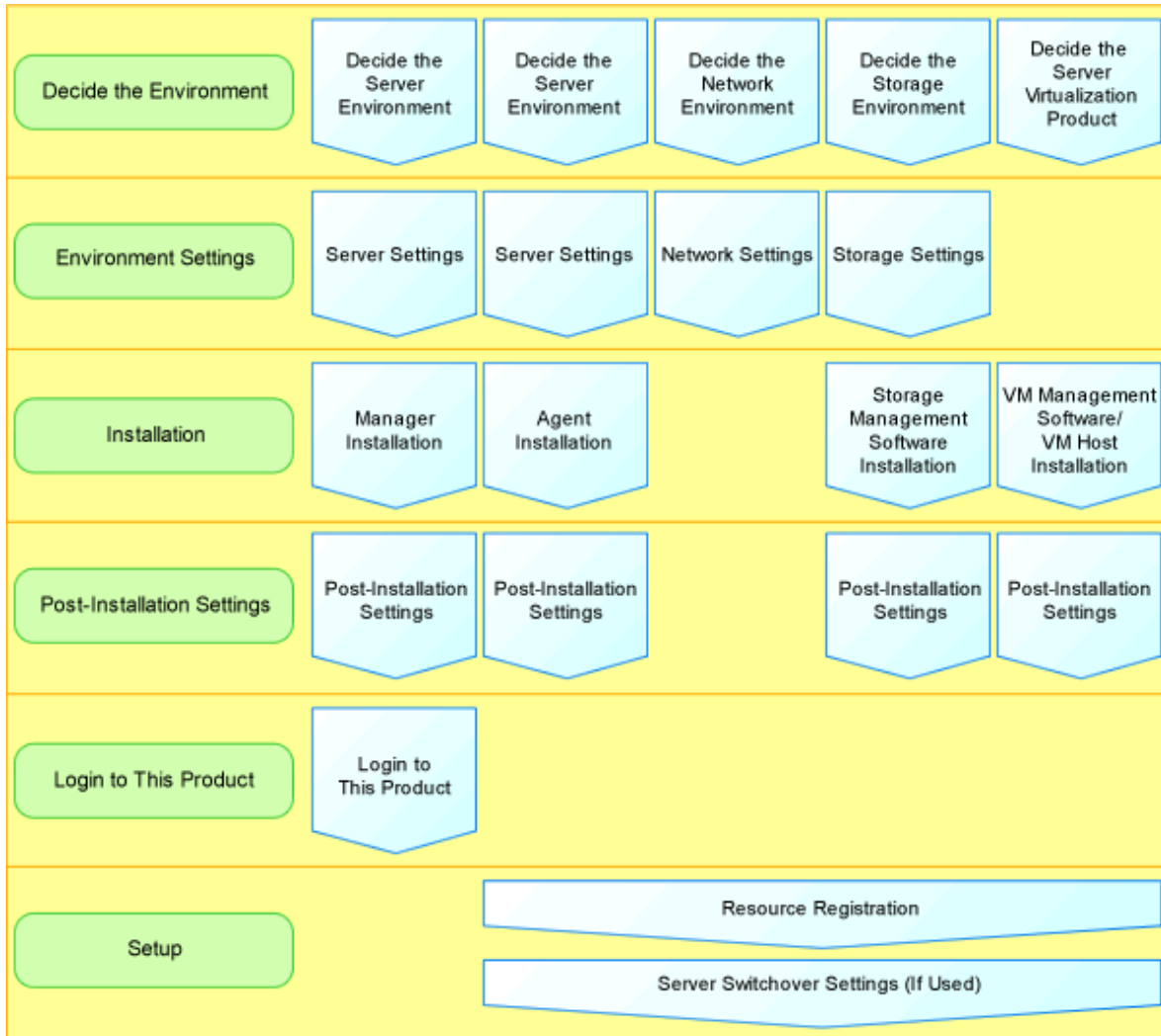
This chapter explains the overall flow of setup when using Resource Orchestrator.

An overview of setup operations when using Resource Orchestrator is given below.

Setup Operations for Special Administrators

The flow of setup operations for special administrators is indicated below.

Figure 1.1 Flow of Setup Operations for Special Administrators



1. Definition for Resource Orchestrator Setup

Define the following settings:

For details, refer to the "Design Guide VE".

- Defining servers, storage, and networks
- Deciding Server Virtualization Software

2. Configuring Resource Orchestrator Setup Settings

Define the following settings:

For details, refer to the "Design Guide VE".

- Server, Storage, and Network Settings
 - Settings for Server Virtualization Software
3. Install Software on Admin Servers
 - a. Install an OS
 - b. Install required software
 - c. Install the manager
 4. Install the manager of Resource Orchestrator.

For details, refer to "[2.1 Manager Installation](#)".
 5. Log in to Resource Orchestrator

Log in to Resource Orchestrator.

For details, refer to "Chapter 1 Login and Logout" in the "User's Guide VE".
 6. License Setup

Set up licenses.

Set up licenses after logging in to Resource Orchestrator.

For details, refer to "Chapter 4 License Setup and Confirmation" in the "User's Guide VE".
 7. Resource Registration

Register the required resources in Resource Orchestrator.

 - When Using Blade Servers
 - Register VIOM
 - Register VM management software (when using VM management software)
 - Register chassis
 - Register managed servers (within chassis)
 - Register LAN switch blades
 - Configure VLANs for LAN switch blades manually
 - Register LAN switches (when monitoring with the network map)
 - Manually configure VLANs for LAN switches
 - Configure power monitoring devices (when using the devices)
 - Configure HBA address rename (when using HBA address rename)
 - Configure the HBA address rename setup service (when using the HBA address rename setup service)
 - Install software and register agents on managed servers
 - Install software and register agents on managed servers (physical servers, VM hosts).
 - Install an OS
 - Install required software
 - Install the agent
 - Register the agent
 - When Using Rack Mount or Tower Servers
 - Register VIOM (when using VIOM)
 - Register VM management software (when using VM management software)
 - Register managed servers

- Register LAN switches (when monitoring with the network map)
- Configure VLANs for LAN switches manually (when monitoring with the network map)
- Configure power monitoring devices (when using the devices)
- Configure HBA address rename (when using HBA address rename)
- Configure the HBA address rename setup service (when using the HBA address rename setup service)
- Install software and register agents on managed servers
- Install software and register agents on managed servers (physical servers, VM hosts).
 - Install an OS
 - Install required software
 - Install the agent
 - Register the agent
- When Using PRIMEQUEST
 - Register VIOM
 - Register VM management software (when using VM management software)
 - Register chassis
 - Register managed servers (within chassis)
 - Register LAN switch blades
 - Configure VLANs for LAN switch blades manually
 - Register LAN switches (when monitoring with the network map)
 - Manually configure VLANs for LAN switches
 - Configure power monitoring devices (when using the devices)
 - Configure HBA address rename (when using HBA address rename)
 - Configure the HBA address rename setup service (when using the HBA address rename setup service)
 - Install software and register agents on managed servers
 - Install software and register agents on managed servers (physical servers, VM hosts).
 - Install an OS
 - Install required software
 - Install the agent
 - Register the agent
- When using SPARC Enterprise
 - Register VIOM
 - Register VM management software (when using VM management software)
 - Register chassis
 - Register managed servers (within chassis)
 - Register LAN switch blades
 - Configure VLANs for LAN switch blades manually
 - Register LAN switches (when monitoring with the network map)
 - Manually configure VLANs for LAN switches

- Configure power monitoring devices (when using the devices)
- Configure HBA address rename (when using HBA address rename)
- Configure the HBA address rename setup service (when using the HBA address rename setup service)
- Install software and register agents on managed servers
- Install software and register agents on managed servers (physical servers, VM hosts).
 - Install an OS
 - Install required software
 - Install the agent
 - Register the agent

8. Settings for Server Switchover

To use server switchover, specify the server switchover settings.

For details, refer to "Chapter 4 Server Switchover" in the "Operation Guide VE".

Chapter 2 Installation

This chapter explains the installation of ServerView Resource Orchestrator.

2.1 Manager Installation

This section explains installation of managers.

2.1.1 Preparations

This section explains the preparations and checks required before commencing installation.

- Host Name Checks
Refer to "[Host Name Checks](#)".
- System Time Checks
Refer to "[System Time Checks](#)".
- Exclusive Software Checks
Refer to "[Exclusive Software Checks](#)".
- Required Software Preparation and Checks
Refer to "[Required Software Preparation and Checks](#)".
- Collection and Checking of Required Information
Refer to "[2.1.1.2 Collecting and Checking Required Information](#)".
- Configuration Parameter Checks
Refer to "[2.1.1.3 Configuration Parameter Checks](#)".

2.1.1.1 Software Preparation and Checks

Software preparation and checks are explained in the following sections.

This section explains the preparations and checks required before commencing the installation of Resource Orchestrator.

Host Name Checks

It is necessary to set the host name (FQDN) for the admin server to operate normally. Describe the host name in the hosts file, using 256 characters or less. In the hosts file, for the IP address of the admin server, configure the host name (FQDN) and then the computer name.

hosts File

[Windows Manager]

```
.system_drive\Windows\System32\drivers\etc\hosts
```

[Linux Manager]

```
/etc/hosts
```



When configuring the hosts file, note the following.

- Do not set the host name (FQDN) and the computer name to "127.0.0.1".
- Confirm that "127.0.0.1"(IPv4 format) is set to "localhost". If other value(IPv6 format) is set, change the value to "127.0.0.1"(IPv4 format). (for Linux Manager)

Example

When configuring the admin server with the IP address "10.10.10.10", the host name (FQDN) "remote1.example.com", and the computer name "remote1"

```
10.10.10.10 remote1.example.com remote1
127.0.0.1 localhost.localdomain localhost
```

For the admin client, to access to the admin server is possible using the host name (FQDN), configure either the hosts file or the DNS server settings so that the name resolution can be performed.

System Time Checks

Set the same system time for the admin server and managed servers.

Exclusive Software Checks

Before installing Resource Orchestrator, check that the software listed in "2.4.2.3 Exclusive Software" of the "Design Guide VE" and the manager of Resource Orchestrator have not been installed on the system.

Use the following procedure to check that exclusive software has not been installed.

[Windows Manager]

1. Open [Add or Remove Programs] on the Windows Control Panel.
The [Add or Remove Programs] window will be displayed.
2. Check that none of the software listed in "2.4.2.3 Exclusive Software" of the "Design Guide VE" or the following software are displayed.
 - "ServerView Resource Orchestrator Manager"
3. If the names of exclusive software have been displayed, uninstall them according to the procedure described in the relevant manual before proceeding.

If managers of an earlier version of Resource Orchestrator have been installed, they can be upgraded. Refer to "E.2 Manager".

When reinstalling a manager on a system on which the same version of Resource Orchestrator has been installed, perform uninstallation referring to "11.1 Uninstall the Manager" and then perform the reinstallation.

Information

For Windows Server 2008, select [Programs and Features] from the Windows Control Panel.

[Linux Manager]

1. Check that none of the software listed in "2.4.2.3 Exclusive Software" in the "Design Guide VE" or the following software are displayed.

Execute the following command and check if Resource Orchestrator Manager has been installed.

```
# rpm -q FJSVrcvmr <RETURN>
```

2. If the names of exclusive software have been displayed, uninstall them according to the procedure described in the relevant manual before proceeding.

If managers of an earlier version of Resource Orchestrator have been installed, they can be upgraded. Refer to "E.2 Manager".

When reinstalling a manager on a system on which the same version of Resource Orchestrator has been installed, perform uninstallation referring to "11.1 Uninstall the Manager" and then perform the reinstallation.

Note

- When uninstalling exclusive software, there are cases where other system operation administrators might have installed the software, so check that deleting the software causes no problems before actually doing so.
- With the standard settings of Red Hat Enterprise Linux 5 or later, when DVD-ROMs are mounted automatically, execution of programs on the DVD-ROM cannot be performed. Release the automatic mount settings and perform mounting manually, or start installation after copying the contents of the DVD-ROM to the hard disk.
When copying the contents of the DVD-ROM, replace "*DVD-ROM_mount_point*" with the used directory in the procedures in this manual.

Required Software Preparation and Checks

Before installing Resource Orchestrator, check that the required software given in "2.4.2.2 Required Software" of the "Design Guide VE" has been installed. If it has not been installed, install it before continuing.

When operating managers in cluster environments, refer to "[Appendix D Manager Cluster Operation Settings and Deletion](#)" and "[D.2.1 Preparations](#)", and perform preparations and checks in advance.

Note

[Windows Manager]

- Microsoft LAN Manager Module

Before installing Resource Orchestrator, obtain the Microsoft LAN Manager module from the following FTP site. The Microsoft LAN Manager module can be used regardless of the CPU architecture type (x86, x64).

```
URL: ftp://ftp.microsoft.com/bussys/clients/msclient/dsk3-1.exe
```

When installing Resource Orchestrator to an environment that already has ServerView Deployment Manager installed, it is not necessary to obtain the Microsoft LAN Manager module.

Prepare for the following depending on the architecture of the installation target.

- When installing a manager on Windows 32bit(x86)

The Microsoft LAN Manager module can be installed without extracting it in advance. Deploy the obtained module to the folder that has been set for environment_variable%SystemRoot%.

- When installing a manager on Windows 64bit(x64)

The obtained module must be extracted using the Expand command on a computer with x86 CPU architecture. The obtained module is for x86 CPU architecture, and cannot be extracted on computers with x64 CPU architecture.

For details on how to extract the module, refer to the following examples:

Example

When dsk3-1.exe was deployed on c:\temp

```
>cd /d c:\temp <RETURN>
>dsk3-1.exe <RETURN>
>Expand c:\temp\protman.do_ /r <RETURN>
>Expand c:\temp\protman.ex_ /r <RETURN>
```

Use the Windows 8.3 format (*1) for the folder name or the file name.

After manager installation is complete, the extracted Microsoft LAN Manager module is no longer necessary.

*1: File names are limited to 8 characters and extensions limited to 3 characters.

After extracting the following modules, deploy them to the folder that has been set for environment_variable%SystemRoot%.

- PROTMAN.DOS
- PROTMAN.EXE
- NETBIND.COM

- **Settings for ServerView Operations Manager 4.X for Windows**

In order for Resource Orchestrator to operate correctly, ensure that when installing ServerView Operations Manager for Windows you do not select "IIS (MS Internet Information Server)" for Select Web Server.

For the settings, refer to the ServerView Operations Manager 4.X for Windows manual.

- **SNMP Trap Service Settings**

In order for Resource Orchestrator to operate correctly, the following settings for the standard Windows SNMP trap service are required.

- Open [Services] from [Administrative Tools] on the Windows Control Panel, and then configure the startup type of SNMP Trap service as [Manual] or [Automatic] on the [Services] window.

- **Settings for ServerView Virtual-IO Manager**

When using VIOM, in order for Resource Orchestrator to operate correctly, ensure that the following settings are made when installing ServerView Virtual-IO Manager for Windows.

- When using the I/O Virtualization Option

Clear the [Select address ranges for IO Virtualization] checkbox on the virtual I/O address range selection window.

- When not using the I/O Virtualization Option

Check the [Select address ranges for IO Virtualization] checkbox on the virtual I/O address range selection window, and then select address ranges for the MAC address and the WWN address.

When there is another manager, select address ranges which do not conflict those of the other manager.

For details, refer to the ServerView Virtual-IO Manager for Windows manual.

- **DHCP server installation**

Installation of the Windows standard DHCP Server is necessary when managed servers belonging to different subnets from the admin server are to be managed.

Install the DHCP Server following the procedure below:

1. Add DHCP Server to the server roles.
Perform binding of the network connections for the NIC to use as the admin LAN.
For the details on adding and binding, refer to the manual for Windows.
2. Open [Services] from [Administrative Tools] on the Windows Control Panel, and then configure the startup type of DHCP Server service as [Manual] on the [Services] window.
3. From the [Services] window, stop the DHCP Server service.
When an admin server is a member of a domain, perform 4.
4. Authorize DHCP servers.
 - a. Open [DHCP] from [Administrative Tools] on the Windows Control Panel, and select [Action]-[Managed authorized servers] on the [DHCP] window.
The [Manage Authorized Servers] window will be displayed.
 - b. Click <Authorize>.
The [Authorize DHCP Server] window will be displayed.
 - c. Enter the admin IP address of the admin server in [Name or IP address].
 - d. Click <OK>.
The [Confirm Authorization] window will be displayed.

- e. Check the [Name] and [IP Address].
- f. Click <OK>.

The server will be displayed in the [Authorized DHCP servers] of the [Manage Authorized Servers] window.

- ETERNUS SF Storage Cruiser

When using ESC, configure the Fibre Channel switch settings in advance.

[Linux Manager]

- Microsoft LAN Manager Module

Before installing Resource Orchestrator, obtain the Microsoft LAN Manager module from the following FTP site.

The Microsoft LAN Manager module can be used regardless of the CPU architecture type (x86, x64).

```
URL: ftp://ftp.microsoft.com/bussys/clients/msclient/dsk3-1.exe
```

When installing Resource Orchestrator to an environment that already has ServerView Deployment Manager installed, it is not necessary to obtain the Microsoft LAN Manager module.

The obtained module must be extracted using the Expand command on a computer with x86 CPU Windows architecture. For details on how to extract the module, refer to the following examples:

 **Example**

When dsk3-1.exe was deployed on c:\temp

```
>cd /d c:\temp <RETURN>
>dsk3-1.exe <RETURN>
>Expand c:\temp\protman.do_ /r <RETURN>
>Expand c:\temp\protman.ex_ /r <RETURN>
```

Use the Windows 8.3 format (*1) for the folder name or the file name.

After manager installation is complete, the extracted Microsoft LAN Manager module is no longer necessary.

*1: File names are limited to 8 characters and extensions limited to 3 characters.

After extracting the following modules, deploy them to a work folder (/tmp) on the system for installation.

- PROTMAN.DOS
- PROTMAN.EXE
- NETBIND.COM

- SNMP Trap Daemon

In order for Resource Orchestrator to operate correctly to operate correctly, ensure that the following settings are made for the "/etc/snmp/snmptrapd.conf" file, when installing the net-snmp package. When there is no file, add the following setting after creating the file.

```
disableAuthorization yes
```

- ETERNUS SF Storage Cruiser

When using ESC, configure the Fibre Channel switch settings in advance.

User Account Checks

The OS user account name used for the database connection for Resource Orchestrator is fixed as "rcxdb". When applications using the OS user account "rcxdb" exist, delete them after confirming there is no effect on them.

Single Sign-On Preparation and Checks (when used)

To use Single Sign-On (SSO) coordination, before installing Resource Orchestrator, certificate preparation and user registration with the registration service are required.

For details, refer to "10 Installing and Configuring Single Sign-On" in the "Design Guide VE".

When using Active Directory for the directory service, select the attributes to use for searching the user ID specified when logging in to Resource Orchestrator, in the "User Search Filter" of the directory service settings used when installing ServerView Operations Manager.

2.1.1.2 Collecting and Checking Required Information

Before installing Resource Orchestrator, collect required information and check the system status, then determine the information to be specified on the installation window. The information that needs to be prepared is given below.

- Installation Folder

Decide the installation folder for Resource Orchestrator.

Note that folders on removable disks cannot be specified.

Check that there are no files or folders in the installation folder.

Check that the necessary disk space can be secured on the drive for installation.

For the amount of disk space necessary for Resource Orchestrator, refer to "2.4.2.4 Static Disk Space" and "2.4.2.5 Dynamic Disk Space" of the "Design Guide VE".

- Image File Storage Folder

The image file storage folder is located in the installation folder.

Check that sufficient disk space can be secured on the drive where the storage folder will be created.

For the necessary disk space, refer to "2.4.2.5 Dynamic Disk Space" of the "Design Guide VE".

For details of how to change the image file storage folder, refer to "5.8 rcxadm imagemgr" in the "Reference Guide (Command) VE".

- Port Number

When Resource Orchestrator is installed, the port numbers used by it will automatically be set in the services file of the system. So usually, there is no need to pay attention to port numbers.

If the port numbers used by Resource Orchestrator are being used for other applications, a message indicating that the numbers are in use is displayed when the installer is started, and installation will stop.

In that case, describe the entries for the following port numbers used by Resource Orchestrator in the services file using numbers not used by other software, and then start the installer.



Example

```
# service name port number/  
protocol name  
nfdomain      23455/tcp  
nfagent       23458/tcp  
rcxmgr        23460/tcp  
rcxweb        23461/tcp  
rcxtask       23462/tcp  
rcxmongrel1   23463/tcp  
rcxmongrel2   23464/tcp  
rcxdb         23465/tcp
```

For details, refer to "8.2 Changing Port Numbers" in the "User's Guide VE".

- Directory Service Connection Information for Single Sign-On

When using Single Sign-On coordination with ServerView Operations Manager, check the settings of the directory service to be used. Refer to the following manual when the OpenDS that is included with ServerView Operations Manager is used.

"ServerView user management via an LDAP directory service" in the "ServerView Suite User Management in ServerView" manual of ServerView Operations Manager

Parameters Used for Installation

The following table contains the parameters used for installation.

[Windows Manager]

No.	Window	Entry	Description
1	Installation Folder Selection	Installation Folder	<p>This is the folder where Resource Orchestrator is installed. (*1)</p> <p>Default value: C:\Fujitsu\ROR</p> <p>The installation folder can contain 14 characters or less including the drive letter and "\".</p> <p>A path starting with "\\" or a relative path cannot be specified.</p> <p>It can contain alphanumeric characters, including hyphens ("-") and underscores ("_").</p>
2	Administrative User Creation	User Account	<p>This is the user account name to be used for logging into Resource Orchestrator as an administrative user.</p> <ul style="list-style-type: none"> - When using Single Sign-On <p>Specify the administrator account, "administrator", of ServerView Operations Manager when the OpenDS that is included with ServerView Operations Manager is used.</p> <ul style="list-style-type: none"> - When not using Single Sign-On <p>The name must start with an alphabetic character and can be up to 16 alphanumeric characters long, including underscores ("_"), hyphens ("-"), and periods (".").</p> <p>Input is case-sensitive.</p>
		Password	<p>The password of the administrative user.</p>
		Retype password	<p>Specify when not using Single Sign-On</p> <p>The string must be composed of alphanumeric characters and symbols, and can be up to 16 characters long.</p>
3	Admin LAN Selection	Network to use for the admin LAN	<p>This is the network to be used as the admin LAN. Select it from the list.</p>
4	Authentication Method Selection	Authentication Method	<p>Select one of the following options.</p> <ul style="list-style-type: none"> - "Internal Authentication" - "ServerView Single sign-on (SSO)"
5	Directory Server Information 1/2	Host	<p>Specify the host name of directory server to connect using FQDN or IP address.</p>
		Port Number	<p>This is the port number of the directory server to be connected to. Check the settings of the directory server to be used.</p>

No.	Window	Entry	Description
6	Directory Server Information 2/2	Base (DN)	This is the base name (DN) of the directory server to be connected to. Check the settings of the directory server to be used. "dc=fujitsu,dc=com" is set when the OpenDS that is included with ServerView Operations Manager is used.
		Administrator (DN)	This is the administrator name (DN) of the directory server to be connected to. Check the settings of the directory server to be used. "cn=Directory Manager" is set when the OpenDS that is included with ServerView Operations Manager is used.
		Password	This is the password of the administrator of the directory server to be connected to. Check the settings of the directory server to be used. Refer to the following manual when the OpenDS that is included with ServerView Operations Manager is used. "ServerView user management with OpenDS" in the "ServerView Suite User Management in ServerView" manual of ServerView Operations Manager

*1: Specify an NTFS disk.

[Linux Manager]

No.	Window	Entry	Description
1	Administrative User Creation	User Account	This is the user account name to be used for logging into Resource Orchestrator as an administrative user. - When using Single Sign-On Specify the administrator account, "administrator", of ServerView Operations Manager when the OpenDS that is included with ServerView Operations Manager is used. - When not using Single Sign-On The name must start with an alphabetic character and can be up to 16 alphanumeric characters long, including underscores ("_"), hyphens ("-"), and periods ("."). Input is case-sensitive.
		Password	The password of the administrative user.
		Retype password	Specify when not using Single Sign-On The string must be composed of alphanumeric characters and symbols, and can be up to 16 characters long.
2	Admin LAN Selection	Network to use for the admin LAN	This is the network to be used as the admin LAN. Select it from the list.
3	Authentication Method Selection	Authentication Method	Select one of the following options. - Internal Authentication - ServerView Single sign-on (SSO)
4	Directory Server Information	Host	Specify the host name of directory server to connect using FQDN or IP address.
		Port Number	This is the port number of the directory server to be connected to. Check the settings of the directory server to be used.

No.	Window	Entry	Description
		Base (DN)	This is the base name (DN) of the directory server to be connected to. Check the settings of the directory server to be used. "dc=fujitsu,dc=com" is set when the OpenDS that is included with ServerView Operations Manager is used.
		Administrator (DN)	This is the administrator name (DN) of the directory server to be connected to. Check the settings of the directory server to be used. "cn=Directory Manager" is set when the OpenDS that is included with ServerView Operations Manager is used.
		Password	This is the password of the administrator of the directory server to be connected to. Check the settings of the directory server to be used. Refer to the following manual when the OpenDS that is included with ServerView Operations Manager is used. "ServerView user management with OpenDS" in the "ServerView Suite User Management in ServerView" manual of ServerView Operations Manager

2.1.1.3 Configuration Parameter Checks

Check configuration parameters following the procedure below:

[Windows Manager]

1. Log in as the administrator.
2. Start the installer.

The installer is automatically displayed when the first DVD-ROM is set in the DVD drive. If it is not displayed, execute "RcSetup.exe" to start the installer.

3. Select "Tool" on the window displayed, and then click "Environment setup conditions check tool". Configuration parameter checking will start.
4. When configuration parameter checking is completed, the check results will be saved in the following location.

C:\temp\ror_precheckresult-YYYY-MM-DD-hhmmss.txt

Refer to the check results, and check that no error is contained. If any error is contained, remove the causes of the error.

[Linux Manager]

1. Log in to the system as the OS administrator (root).

Boot the admin server in multi-user mode to check that the server meets requirements for installation, and then log in to the system using root.

2. Set the first Resource Orchestrator DVD-ROM.

3. Execute the following command to mount the DVD-ROM. If the auto-mounting daemon (autofs) is used for starting the mounted DVD-ROM, the installer will fail to start due to its "noexec" mount option.

```
# mount -t iso9660 -r /dev/hdc DVD-ROM_mount_point
<RETURN>
```

4. Execute the agent installation command (the RcSetup.sh command).

```
# cd DVD-ROM_mount_point <RETURN>
# ./RcSetup.sh <RETURN>
```


5. Select "Environment setup conditions check tool" from the menu to execute the tool.
6. When the check is completed, the result will be sent to standard output.

2.1.2 Installation [Windows Manager]

The procedure for manager installation is given below.

Before installing Resource Orchestrator, check that the preparations given in ["2.1.1 Preparations"](#) have been performed.

Installation

The procedure for manager installation is given below.

1. Log on as the administrator.
Log on to the system on which the manager is to be installed.
Log on using the Administrator account.
2. Start the installer.
The installer is automatically displayed when the first DVD-ROM is set in the DVD drive. If it is not displayed, execute "RcSetup.exe" to start the installer.
3. Click "Manager(Virtual Edition) installation".
4. Following the installation wizard, enter the parameters prepared and confirmed in ["Parameters Used for Installation"](#) properly.



- In the event of installation failure, restart and then log in as the user that performed the installation, and perform uninstallation following the uninstallation procedure.
After that, remove the cause of the failure referring to the meaning of the output message and the suggested corrective actions, and then perform installation again.
- If there are internal inconsistencies detected during installation, the messages "The problem occurred while installing it" or "Native Installer Failure" will be displayed and installation will fail. In this case, uninstall the manager and reinstall it. If the problem persists, please contact Fujitsu technical staff.
- Nullifying Firewall Settings for Ports to be used by Resource Orchestrator
When installing Resource Orchestrator on systems with active firewalls, in order to enable correct communication between the manager, agents, and clients, disable the firewall settings for the port numbers to be used for communication.
For the port numbers used by Resource Orchestrator and required software, refer to "Appendix A Port List" of the "Design Guide VE".
However, when port numbers have been changed by editing the services file during installation of Resource Orchestrator, replace the default port numbers listed in "Appendix A Port List" of the "Design Guide VE" with the port numbers changed to during installation.

2.1.3 Installation [Linux Manager]

The procedure for manager installation is given below.

Before installing Resource Orchestrator, check that the preparations given in ["2.1.1 Preparations"](#) have been performed.

1. Log in to the system as the OS administrator (root).
Boot the admin server that Resource Orchestrator is to be installed on in multi-user mode, and then log in to the system using root.
2. Set the first Resource Orchestrator DVD-ROM and execute the following command to mount the DVD-ROM. If the auto-mounting daemon (autofs) is used for DVD-ROM auto-mounting, the installer fails to start due to its "noexec" mount option.

```
# mount -t iso9660 -r /dev/hdc DVD-ROM_mount_point <RETURN>
```

3. Execute the manager installation command (the RcSetup.sh command).

```
# DVD-ROM_mount_point/ RcSetup.sh <RETURN>
```

4. Select "1. Manager(Virtual Edition) installation".
5. Perform installation according to the installer's interactive instructions.

Enter the parameters prepared and confirmed in "[Parameters Used for Installation](#)" in "[2.1.1.2 Collecting and Checking Required Information](#)".

Note

- Current Directory Setting

Do not set the current directory to the DVD-ROM to allow disk switching.

- In Single User Mode

In single user mode, X Windows does not start, and one of the following operations is required.

- Switching virtual consoles (using the [Ctrl] + [Alt] + [Fn] keys)
- Making commands run in the background

- Corrective Action for Installation Failure

In the event of installation failure, restart the OS and then log in as the user that performed the installation, and perform uninstallation following the uninstallation procedure.

After that, remove the cause of the failure referring to the meaning of the output message and the suggested corrective actions, and then perform installation again.

- If there are internal inconsistencies detected during installation, the messages "The problem occurred while installing it" or "It failed in the installation" will be displayed and installation will fail. In this case, uninstall the manager and reinstall it. If the problem persists, please contact Fujitsu technical staff.

- Nullifying Firewall Settings for Ports to be used by Resource Orchestrator

When installing Resource Orchestrator on systems with active firewalls, in order to enable correct communication between the manager, agents, and clients, disable the firewall settings for the port numbers to be used for communication.

For the port numbers used by Resource Orchestrator and required software, refer to "Appendix A Port List" of the "Design Guide VE".

However, when port numbers have been changed by editing the services file during installation of Resource Orchestrator, replace the default port numbers listed in "Appendix A Port List" of the "Design Guide VE" with the port numbers changed to during installation.

- Uninstall the Related Services

When locating ServerView Deployment Manager in the same subnet, it is necessary to uninstall the related services.

For the method for uninstalling the related services, please refer to "5.1 deployment_service_uninstall" of the "Reference Guide (Command) VE".

- Destination Directories

The destination directories are fixed as those below and cannot be changed.

- /opt
- /etc/opt
- /var/opt

2.2 Agent Installation

This section explains the procedure for physical server or VM host agent installation.

The relationships of installation directories and the agents that must be installed is as follows.

Table 2.1 Relationships of Installation Directories and the Agents that must be Installed

Installation Directories		Agent
VM Host	VMware	Yes (*1)
	Hyper-V	Yes
	Xen	Yes
	KVM	Yes
Physical Server	Windows	Yes
	Linux	Yes

*1 When using VMware ESXi, Resource Orchestrator agents cannot be installed.
Install ServerView ESXi CIM Provider agents.

When deploying multiple new managed servers using Windows or Linux, cloning enables copying of the data installed on a server (OS, updates, Resource Orchestrator agents, and common software installed on servers) to other servers.

For details, refer to "Chapter 17 Cloning [Physical Servers]" of the "User's Guide VE".

2.2.1 Preparations

This section explains the preparations and checks required before commencing installation.

2.2.1.1 Software Preparation and Checks

Software preparation and checks are explained in the following sections.

- Exclusive Software Checks

Refer to "[Exclusive Software Checks](#)".

- Required Software Checks

Refer to "[Required Software Preparation and Checks](#)".

Exclusive Software Checks

Before installing Resource Orchestrator, check that the software listed in "2.4.2.3 Exclusive Software" of the "Design Guide VE" and the agent of Resource Orchestrator have not been installed on the system.

Use the following procedure to check that exclusive software has not been installed.

[Windows] [Hyper-V]

1. Open [Add or Remove Programs] on the Windows Control Panel.

The [Add or Remove Programs] window will be displayed.

2. Check that none of the software listed in "2.4.2.3 Exclusive Software" of the "Design Guide VE" has been installed on the system, and there is no information which shows a Resource Orchestrator agent has been installed.
 - "ServerView Resource Orchestrator Agent"

3. When any of the exclusive software is displayed on the [Add or Remove Programs] window, uninstall it according to the procedure described in the relevant manual before installing Resource Orchestrator.

If agents of an earlier version of Resource Orchestrator have been installed, they can be upgraded. Refer to "E.3 Agent".

When reinstalling an agent on a system on which an agent of the same version of Resource Orchestrator has been installed, perform uninstallation referring to "11.2.1 Uninstallation [Windows] [Hyper-V]" and then perform installation.

Information

For Windows Server 2008, select [Programs and Features] from the Windows Control Panel.

[Linux]

1. Check that none of the software listed in "2.4.2.3 Exclusive Software" in the "Design Guide VE" are displayed. Execute the following command and check if Resource Orchestrator Agent has been installed.

```
# rpm -q FJSVrcvat <RETURN>
```

2. If the names of exclusive software have been displayed, uninstall them according to the procedure described in the relevant manual before proceeding.

If agents of an earlier version of Resource Orchestrator have been installed, they can be upgraded. Refer to "E.3 Agent".

When reinstalling an agent on a system on which an agent of the same version of Resource Orchestrator has been installed, perform uninstallation referring to "11.2.2 Uninstallation [Linux] [VMware] [Xen] [KVM] [Oracle VM]" and then perform installation.

Note

- When uninstalling exclusive software, there are cases where other system operation administrators might have installed the software, so check that deleting the software causes no problems before actually doing so.
- With the standard settings of Red Hat Enterprise Linux 5 or later, when DVD-ROMs are mounted automatically, execution of programs on the DVD-ROM cannot be performed. Release the automatic mount settings and perform mounting manually, or start installation after copying the contents of the DVD-ROM to the hard disk.
When copying the contents of the DVD-ROM, replace "*DVD-ROM_mount_point*" with the used directory in the procedures in this manual.

Required Software Preparation and Checks

Before installing Resource Orchestrator, check that the required software given in "2.4.2.2 Required Software" of the "Design Guide VE" has been installed. If it has not been installed, install it before continuing.

Note

- ServerView Agents Settings

To operate Resource Orchestrator correctly on PRIMERGY series servers, perform the necessary settings for SNMP services during installation of ServerView Agents.

For how to perform SNMP service settings, refer to the ServerView Agents manual.

- For the SNMP community name, specify the same value as the SNMP community name set for the management blade.
- For the SNMP community name, set Read (reference) or Write (reference and updating) authority.
- For the host that receives SNMP packets, select [Accept SNMP packets from any host] or [Accept SNMP packets from these hosts] and set the admin LAN IP address of the admin server.
- For the SNMP trap target, set the IP address of the admin server.
When an admin server with multiple NICs is set as the SNMP trap target, specify the IP address of the admin LAN used for communication with the managed server.

- The "setupcl.exe" and "sysprep.exe" Modules

For Windows OS's other than Windows Server 2008, it is necessary to specify storage locations for the "setupcl.exe" and "sysprep.exe" modules during installation. Obtain the newest modules before starting installation of Resource Orchestrator.

For the method of obtaining the modules, refer to "2.4.2.2 Required Software" of the "Design Guide VE".

Extract the obtained module using the following method:

Example

When WindowsServer2003-KB926028-v2-x86-JPN.exe has been placed in c:\temp

```
>cd /d c:\temp <RETURN>
>WindowsServer2003-KB926028-v2-x86-JPN.exe /x <RETURN>
```

During installation, specify the cabinet file "deploy.cab" in the extracted folder, or the "setupcl.exe" and "sysprep.exe" modules contained in "deploy.cab".

After agent installation is complete, the extracted module is no longer necessary.

Red Hat Enterprise Linux 6 Preconfiguration

Only perform this when using Red Hat Enterprise Linux 6 as the basic software of a server.

When using cloning and server switchover, perform the following procedure to modify the configuration file.

1. Execute the following command.

```
# systool -c net <RETURN>
```

Example

```
# systool -c net <RETURN>
Class = "net"
Class Device = "eth0"
Device =
"0000:01:00.0"
Class Device = "eth1"
Device =
"0000:01:00.1"
Class Device = "eth2"
Device =
"0000:2:00 AM.0"
Class Device = "eth3"
Device =
"0000:2:00 AM.1"
Class Device = "lo"
Class Device = "sit0"
```

2. Confirm the device name which is displayed after "Class Device =" and the PCI bus number which is displayed after "Device =" in the command output results.
3. Correct the configuration file.

After confirming support for device name and MAC address in the following configuration file, change ATTR{address}=="MAC_address" to KERNELS=="PCI_bus_number".

All corresponding lines should be corrected.

Configuration File Storage Location

/etc/udev/rules.d/70-persistent-net.rules

Example

- Before changing

```
SUBSYSTEM=="net", ACTION=="add", DRIVERS=="?*",
ATTR{address}=="MAC_address", ATTR{type}=="1", KERNEL=="eth*",
NAME="Device_name"
```

- After changing

```
SUBSYSTEM=="net", ACTION=="add", DRIVERS=="?*",
KERNELS=="PCI_bus_number", ATTR{type}=="1", KERNEL=="eth*",
NAME="Device_name"
```

4. After restarting the managed servers, check if communication with the entire network is possible.

Configuration File Check

- When using Red Hat Enterprise Linux

When using the following functions, check the configuration files of network interfaces before installing Resource Orchestrator, and release any settings made to bind MAC addresses.

- Server switchover
- Cloning

Only perform this when using Red Hat Enterprise Linux 4 AS/ES as the basic software of a server.

Refer to the /etc/sysconfig/network-scripts/ifcfg-ethX file (ethX is an interface name such as eth0 or eth1), and check that there is no line starting with "HWADDR=" in the file.

If there is a line starting with "HWADDR=", this is because the network interface is bound to a MAC address. In that case, comment out the line.

Example

When the admin LAN interface is eth0

```
DEVICE=eth0
#HWADDR=xx:xx:xx:xx:xx:xx <- If this line exists, comment it out.
ONBOOT=yes
TYPE=Ethernet
```

- When using SUSE Linux Enterprise Server

- When using cloning and server switchover, perform the following procedure to modify the configuration file.

1. Execute the following command.

```
# systool -c net <RETURN>
```

Example

```
# systool -c net <RETURN>
Class = "net"

Class Device = "eth0"
Device = "0000:01:00.0"

Class Device = "eth1"
Device = "0000:01:00.1"

Class Device = "eth2"
Device = "0000:2:00 AM.0"

Class Device = "eth3"
Device = "0000:2:00 AM.1"

Class Device = "lo"

Class Device = "sit0"
```



- 2. Confirm the device name which is given after "Class Device =" and PCI bus number which is given after "Device =" in the command output results.
- 3. Modify the configuration file.

When using SUSE Linux Enterprise Server 10

- a. After confirming support for device name and MAC address in the following configuration file, change `SYSFS{ address}=="MAC_address"` to `ID=="PCI_bus_number"`. All corresponding lines should be corrected. Support of the device name and MAC address will be used after step b.

/etc/udev/rules.d/30-net_persistent_names.rules

Before changing

```
SUBSYSTEM=="net", ACTION=="add", SYSFS{ address}=="MAC_address",
IMPORT="/lib/udev/rename_netiface %k device_name"
```

After changing

```
SUBSYSTEM=="net", ACTION=="add", ID=="PCI_bus_number", IMPORT="/lib/
udev/rename_netiface %k device_name"
```

- b. Based on the results of step 1. and a. in step 3., change the name of the following file will be to a name that includes the PCI bus number.

Before changing

/etc/sysconfig/network/ifcfg-eth-id-MAC address

After changing

/etc/sysconfig/network/ifcfg-eth-bus-pci-PCI bus number

When using SUSE Linux Enterprise Server 11

- Change `ATTR{ address}=="MAC_address"` to `KERNELS=="PCI_bus_number"` in the following configuration file. All corresponding lines should be corrected.

/etc/udev/rules.d/70-persistent-net.rules

Before changing

```
SUBSYSTEM=="net", ACTION=="add", DRIVERS=="?*",
ATTR{address}=="MAC_address", ATTR{type}=="1", KERNEL=="eth*",
NAME="device_name"
```

After changing

```
SUBSYSTEM=="net", ACTION=="add", DRIVERS=="?*",
KERNELS=="PCI_bus_number", ATTR{type}=="1", KERNEL=="eth*",
NAME="device_name"
```

4. After restarting the managed servers, check if communication with the entire network is possible.

- When using cloning or the backup and restore method for server switchover, during installation perform partition settings so that names of device paths are defined using the "Device Name" format (for example: /dev/sda1) in the /etc/fstab file.

When installation is already complete, change the names of device paths defined in the boot configuration files /boot/efi/SuSE/elilo.conf and /boot/grub/menu.lst, and the /etc/fstab file so they use the "Device Name" format (for example: /dev/sda1). For specific details about the mount definition, please refer to the following URL and search for the Document ID:3580082.

<http://www.suse.com/documentation/>

2.2.1.2 Collecting and Checking Required Information

Before installing Resource Orchestrator, collect required information and check the system status, then determine the information to be specified on the installation window. The information that needs to be prepared is given below.

- Installation folder and available disk space

Decide the installation folder for Resource Orchestrator. Check that the necessary disk space can be secured on the drive for installation. For the amount of disk space necessary for Resource Orchestrator, refer to "2.4.2.4 Static Disk Space" and "2.4.2.5 Dynamic Disk Space" of the "Design Guide VE".

- Port Number

When Resource Orchestrator is installed, the port numbers used by it will automatically be set in the services file of the system. So usually, there is no need to pay attention to port numbers.

If the port numbers used by Resource Orchestrator are being used for other applications, a message indicating that the numbers are in use is displayed when the installer is started, and installation will stop.

In that case, describe the entries for the port numbers used by Resource Orchestrator in the services file using numbers not used by other software, and then start the installer.

For details, refer to "9.1.6 Changing Port Numbers" in the "User's Guide VE".

- Check the status of the admin LAN and NIC

Decide the network (IP addresses) to be used for the admin LAN.

Check that the NIC used for communication with the admin LAN is enabled.

For details on admin LANs, refer to "7.2 IP Addresses (Admin LAN)" in the "Design Guide VE".

[Linux] [Xen] [KVM]

Make the numeral of the managed server's network interface name (ethX) one of a consecutive sequence starting from 0. For the settings, refer to the manual for the OS.

- Check the target disk of image operations

For backup and restoration of system images to disks, refer to "9.1 Overview" in the "Operation Guide VE".

For details on disks for cloning, refer to "17.1 Overview" in the "User's Guide VE".

- Windows Volume License Information [Windows]

When using the following functions, you must have a volume license for the version of Windows to be installed on managed servers by Resource Orchestrator.

Check whether the Windows license you have purchased is a volume license.

- Server switchover (HBA address rename method/ VIOM server profile switchover method)
- Cloning
- Restoration after server replacement
- Server replacement using HBA address rename

When using cloning, you must enter volume license information when installing Resource Orchestrator. Depending on the version of Windows being used, check the following information prior to installation.

- For Windows Server 2003

Check the product key.

Generally, the product key is provided with the DVD-ROM of the Windows OS purchased.

- For Windows Server 2008

Check the information necessary for license authentication (activation).

The two activation methods are Key Management Service (KMS) and Multiple Activation Key (MAK). Check which method you will use.

Check the following information required for activation depending on the method you will use.

- Activation Information

Table 2.2 Activation Information Methods and Information to Check

Method	Information to Check
KMS (*1)	<ul style="list-style-type: none"> - The KMS host name (FQDN) or the computer name or IP address - Port number (Default 1688) (*2)
MAK	The MAK key

*1: When using Domain Name Service (DNS) to automatically find the KMS host, checking is not necessary.

*2: When changing the port number from the default (1688), correct the definition file after installing agents. Refer to "17.2 Collecting a Cloning Image" in the "User's Guide VE".

- Proxy Server Information

When using a proxy server to connect to the KMS host (KMS method) or the Volume Activation Management Tool (VAMT) to authenticate a proxy license (MAK method), check the host name or IP address, and the port number of the proxy server.

- Administrator's Password

Check the password as it is necessary for performing activation.

- Windows Administrator accounts

When using Windows Server 2008, check whether Administrator accounts have been changed (renamed).

Environments which have been changed (renamed) are not supported.

2.2.2 Installation [Windows] [Hyper-V]

This section explains the procedure for agent installation.

Before installing Resource Orchestrator, check that the preparations given in "2.2.1 Preparations" have been performed.

1. Log on to Windows as the administrator.

Log on to the system on which the agent is to be installed. Log on using the Administrator account.

2. Start the installer from the window displayed when the first Resource Orchestrator DVD-ROM is set.

Click [Agent installation] which is displayed on the window.

3. The Resource Orchestrator setup window will be displayed.

Check the contents of the license agreement window etc. and then click <Yes>.

- When Key Management Service (KMS) is selected

KMS host

Enter the host name of the KMS host name, and the computer name or IP address.

When using Domain Name Service (DNS) to automatically find the KMS host, this is not necessary.

- When Multiple Activation Key (MAK) is selected

The MAK key

Enter the MAK key for the computer the agent is to be installed on.

Confirm Multiple Activation Key

Enter the MAK key again to confirm it.

Proxy server used for activation

Enter the host name or IP address of the proxy server.

When the proxy server has a port number, enter the port number.

Administrator's Password

Enter the administrator password for the computer the agent is to be installed on.



If an incorrect value is entered for [Product Key], [Key Management Service host], [The MAK Key], or [Proxy server used for activation] on the [License Authentication Information Entry] window, cloning will be unable to be used. Check that the correct values have been entered.

7. The [Start Copying Files] window will be displayed.

Check that there are no mistakes in the contents displayed on the window, and then click <Install>.

Copying of files will start.

To change the contents, click <<Back>.

8. The Resource Orchestrator setup completion window will be displayed.

When setup is completed, the [Installshield Wizard Complete] window will be displayed.

Click <Finish> and close the window.



- Corrective Action for Installation Failure

When installation is stopped due to errors (system errors, processing errors such as system failure, or errors due to execution conditions) or cancellation by users, remove the causes of any problems, and then take corrective action as follows.

- Open [Add or Remove Programs] from the Windows Control Panel, and when [ServerView Resource Orchestrator Agent] is displayed, uninstall it and then install the agent again.

For uninstallation, refer to "[11.2 Agent Uninstallation](#)".



For Windows Server 2008, select "Programs and Features" from the Windows Control Panel.

- If [ServerView Resource Orchestrator Agent] is not displayed, install it again.

- Nullifying Firewall Settings for Ports to be used by Resource Orchestrator

When installing Resource Orchestrator on systems with active firewalls, in order to enable the manager to communicate with agents correctly, disable the firewall settings for the port numbers to be used for communication.

For the port numbers used by Resource Orchestrator and required software, refer to "Appendix A Port List" of the "Design Guide VE".

However, when port numbers have been changed by editing the services file during installation of Resource Orchestrator, replace the default port numbers listed in "Appendix A Port List" of the "Design Guide VE" with the port numbers changed to during installation.

- Uninstall the Related Services

When installing ServerView Deployment Manager after Resource Orchestrator has been installed, or using ServerView Deployment Manager in the same subnet, it is necessary to uninstall the related services.

For the method for uninstalling the related services, please refer to "5.1 deployment_service_uninstall" in the "Reference Guide (Command) VE".

2.2.3 Installation [Linux] [VMware] [Xen] [KVM] [Oracle VM]

This section explains the procedure for agent installation.

Before installing Resource Orchestrator, check that the preparations given in "2.2.1 Preparations" have been performed.

1. Log in to the system as the OS administrator (root).

Boot the managed server that agent (Cloud Edition for Dashboard) is to be installed on in multi-user mode, and then log in to the system using root.

[Xen] [KVM]

Log in from the console.

2. Set the first Resource Orchestrator DVD-ROM.

3. Execute the following command to mount the DVD-ROM. If the auto-mounting daemon (autofs) is used for starting the mounted DVD-ROM, the installer will fail to start due to its "noexec" mount option.

```
# mount -t iso9660 -r /dev/hdc DVD-ROM_mount_point <RETURN>
```

4. Execute the agent installation command (RcSetup.sh).

```
# cd DVD-ROM_mount_point <RETURN>
# ./RcSetup.sh <RETURN>
```

5. Perform installation according to the installer's interactive instructions.

6. Enter the host name or IP address of a connected admin server.

[Xen]

When using Citrix XenServer, restart the managed server.

When using the Linux virtual machine function of Red Hat Enterprise Linux 5 or Red Hat Enterprise Linux 6, use the following procedure.

1. After using the following command to disable the automatic startup setting of the xend daemon, restart the managed server.

```
# chkconfig xend off <RETURN>
```

2. After the restart is complete, use the following command to update the bind settings of the MAC address. Then, enable the automatic startup setting of the xend daemon and start the xend daemon.

```
# /usr/local/sbin/macbindconfig create <RETURN>
# chkconfig xend on <RETURN>
# service xend start <RETURN>
```



- Corrective Action for Installation Failure

In the event of installation failure, restart and then log in as the user that performed the installation, and perform uninstallation following the uninstallation procedure.

After that, remove the cause of the failure referring to the meaning of the output message and the suggested corrective actions, and then perform installation again.

- Nullifying Firewall Settings for Ports to be used by Resource Orchestrator

When installing Resource Orchestrator on systems with active firewalls, in order to enable the manager to communicate with agents correctly, disable the firewall settings for the port numbers to be used for communication.

Example

[VMware]

```
# /usr/sbin/esxcfg-firewall -openPort 23458,tcp,in,"nfagent" <RETURN>
```

For the port numbers used by Resource Orchestrator and required software, refer to "Appendix A Port List" of the "Design Guide VE". However, when port numbers have been changed by editing the services file during installation of Resource Orchestrator, replace the default port numbers listed in "Appendix A Port List" of the "Design Guide VE" with the port numbers changed to during installation.

- When Installation was Performed without using the Console [Xen] [KVM]

When installation is performed by logging in from somewhere other than the console, the network connection will be severed before installation is complete, and it is not possible to confirm if the installation was successful. Log in from the console and restart the managed server. After restarting the server, follow the procedure in "Corrective Action for Installation Failure" and perform installation again.

- Uninstall the Related Services

When installing ServerView Deployment Manager after Resource Orchestrator has been installed, or using ServerView Deployment Manager in the same subnet, it is necessary to uninstall the related services.

For the method for uninstalling the related services, please refer to "5.1 deployment_service_uninstall" in the "Reference Guide (Command) VE".

2.2.4 Installation [Solaris]

This section explains the procedure for agent installation.

Before installing Resource Orchestrator, check that the preparations given in "2.2.1 Preparations" have been performed.

1. Log in to the system as the OS administrator (root).

Boot the managed server that agent (Cloud Edition for Dashboard) is to be installed on in multi-user mode, and then log in to the system using root.

2. Set the first DVD-ROM and execute the following command, then move to the directory where the installer is stored.

```
# cd DVD-ROM_mount_point/DISK1/Agent/Solaris/agent <RETURN>
```

3. Execute the agent installer (the `rcxagtinstall` command).

```
# ./rcxagtinstall <RETURN>
```

```
ServerView Resource Orchestrator V3.0.0  
Copyright FUJITSU LIMITED 2007-2011
```

```
This program will install ServerView Resource Orchestrator Agent on your system.
```

4. The license agreement is displayed.

```
This program is protected by copyright law and international treaties.
```

```
Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.
```

```
Copyright FUJITSU LIMITED 2007-2011
```

```
Do you want to continue the installation of this software? [y,n,?,q]
```

Check the content of the agreement, and enter "y" if you agree or "n" if you do not agree.

- If "n" or "q" is entered

The installation is discontinued.

- If "?" is entered

An explanation of the entry method is displayed.

5. Enter "y" and the installation will start.

Example

```
INFO : Starting Installation of ServerView Resource Orchestrator Agent...
INFO : Package FJSVrcxat was successfully installed.
...
```

6. When installation is completed successfully, the following message will be displayed.

```
INFO : ServerView Resource Orchestrator Agent was installed successfully.
```

Note

- Corrective Action for Installation Failure

Execute the following command, delete the packages from the environment in which installation failed, and then perform installation again.

```
# cd DVD-ROM_mount_point/agent <RETURN>
# ./rcxagtuninstall <RETURN>
```

- Nullifying Firewall Settings for Ports to be used by Resource Orchestrator

When installing Resource Orchestrator on systems with active firewalls, in order to enable the manager to communicate with agents correctly, disable the firewall settings for the port numbers to be used for communication.

For the port numbers used by Resource Orchestrator and required software, refer to "Appendix A Port List" of the "Design Guide VE". However, when port numbers have been changed by editing the services file during installation of Resource Orchestrator, replace the default port numbers listed in "Appendix A Port List" of the "Design Guide VE" with the port numbers changed to during installation.

2.3 HBA address rename setup service Installation

This section explains installation of the HBA address rename setup service.

The HBA address rename setup service is only necessary when using HBA address rename.

For details, refer to "2.6 System Configuration" of the "Design Guide VE".

2.3.1 Preparations

This section explains the preparations and checks required before commencing installation.

2.3.1.1 Software Preparation and Checks

Software preparation and checks are explained in the following sections.

Exclusive Software Checks

Before installing Resource Orchestrator, check that the software listed in "2.4.2.3 Exclusive Software" of the "Design Guide VE" and the HBA address rename setup service of Resource Orchestrator have not been installed on the system.

Use the following procedure to check that exclusive software has not been installed.

1. Check if the HBA address rename setup service has been installed using the following procedure:

[Windows]

Open [Add or Remove Programs] from the Windows Control Panel, and check that none of the software listed in "2.4.2.3 Exclusive Software" of the "Design Guide VE" or the HBA address rename setup service have been installed.

Information

For Windows Server 2008 or Windows Vista, select [Programs and Features] from the Windows Control Panel.

[Linux]

Execute the following command and check if the package has been installed.

```
# rpm -q FJSVrcvhh FJSVscw-common FJSVscw-tftpsv <RETURN>
```

2. If exclusive software has been installed, uninstall it according to the procedure described in the relevant manual before proceeding.

2.3.1.2 Collecting and Checking Required Information

Before installing Resource Orchestrator, collect required information and check the system status, then determine the information to be specified on the installation window. The information that needs to be prepared is given below.

- Installation folder and available disk space

Decide the installation folder for Resource Orchestrator. Check that the necessary disk space can be secured on the drive for installation. For the amount of disk space necessary for Resource Orchestrator, refer to "2.4.2.4 Static Disk Space" and "2.4.2.5 Dynamic Disk Space" of the "Design Guide VE".

2.3.2 Installation [Windows]

Install the HBA address rename setup service using the following procedure.

Before installing Resource Orchestrator, check that the preparations given in "2.3.1 Preparations" have been performed.

1. Log on to Windows as the administrator.

Log on to the system on which the HBA address rename setup service is to be installed. Log on using the Administrator account.

2. Start the installer from the window displayed when the first Resource Orchestrator DVD-ROM is set.

Click "HBA address rename setup service installation" on the window.

Information

If the above window does not open, execute "RcSetup.exe" from the DVD-ROM drive.

3. Enter parameters prepared and confirmed in "Parameters Used for Installation" according to the installer's instructions.
4. The Resource Orchestrator setup window will be displayed.

Check the contents of the license agreement window etc. and then click <Yes>.

5. The [Select Installation Folder] window will be displayed.

Click <Next>> to use the default Installation Folder. To change folders, click <Browse>, change folders, and click <Next>>.

 Note

When changing the folders, be careful about the following points.

- Do not specify the installation folder of the system (such as C:\).
- Enter the location using 100 characters or less. Do not use double-byte characters or the following symbols in the folder name.
" " , | , . : , * , ? , / , . , . , < , > , , , % , & , ^ , = , ! , ; , # , " , ' , + , [,] , { , }
- When installing this product to Windows 2003 x64 Edition or Windows 2008 x64 Edition, the following folder names cannot be specified for the installation folders.
 - "%SystemRoot%\System32\"
 - Folder names including "Program Files" (except the default "C:\Program Files (x86)")

6. The [Start Copying Files] window will be displayed.

Check that there are no mistakes in the contents displayed on the window, and then click <Install>>.

Copying of files will start.

To change the contents, click <<Back>.

7. The Resource Orchestrator setup completion window will be displayed.

When using the HBA address rename setup service immediately after configuration, check the [Yes, launch it now.] checkbox.

Click <Finish> and close the window.

- If the check box is checked
The HBA address rename setup service will start after the window is closed.
- If the check box is not checked
Refer to "[Chapter 6 Settings for the HBA address rename Setup Service](#)", and start the HBA address rename setup service.

 Note

- Corrective Action for Installation Failure

When installation is stopped due to errors (system errors, processing errors such as system failure, or errors due to execution conditions) or cancellation by users, remove the causes of any problems, and then take corrective action as follows.

- Open [Add or Remove Programs] from the Windows Control Panel, and if [ServerView Resource Orchestrator HBA address rename Setup Service] is displayed, uninstall it and then install the service again.
For uninstallation, refer to "[11.3 HBA address rename Setup Service Uninstallation](#)".

 Information

For Windows Server 2008 or Windows Vista, select "Programs and Features" from the Windows Control Panel.

- If [ServerView Resource Orchestrator HBA address rename setup service] is not displayed, install it again.

2.3.3 Installation [Linux]

Install the HBA address rename setup service using the following procedure.

Before installing Resource Orchestrator, check that the preparations given in "[2.3.1 Preparations](#)" have been performed.

1. Log in to the system as the OS administrator (root).

Boot the managed server that agent (Cloud Edition for Dashboard) is to be installed on in multi-user mode, and then log in to the system using root.

2. Set the first Resource Orchestrator DVD-ROM.
3. Execute the following command to mount the DVD-ROM. If the auto-mounting daemon (autofs) is used for starting the mounted DVD-ROM, the installer will fail to start due to its "noexec" mount option.

```
# mount -t iso9660 -r /dev/hdccd DVD-ROM_mount_point <RETURN>
```

4. Execute the installation command (RcSetup.sh).

```
# cd DVD-ROM_mount_point <RETURN>
# ./RcSetup.sh <RETURN>
```

5. Perform installation according to the installer's instructions.

Note

- Corrective Action for Installation Failure

Execute the following command, delete the packages from the environment in which installation failed, and then perform installation again.

```
# cd DVD-ROM_mount_point/DISK1/HBA/Linux/hbaar <RETURN>
# ./rcxhbauninstall <RETURN>
```

Chapter 3 Login to the ROR Console

This chapter describes how to open and close the ROR console.

Preparations

Preparations are necessary for log in to the ROR console.

Refer to "Chapter 1 Login and Logout" in the "User's Guide VE".

Opening the ROR Console

This section explains how to access the ROR console.

Add the URL of the ROR console to the "Trusted sites" of the browser.

Start a Web browser from an admin client and specify the URL of the ROR console for connection.

If the port number was changed, specify the new port number.

When Single Sign-On has been configured, the login window for Single Sign-On will be displayed. However, when Single Sign-On authentication has already been performed, the ROR console can be started without displaying the login window.

When Single Sign-On is not configured, the login window for Resource Orchestrator will be displayed.

For details on Single Sign-On, refer to "Chapter 10 Installing and Defining Single Sign-On" in the "Design Guide VE".

```
URL: https://Admin_server_IP_address:23461/
```

On a Windows admin server, the ROR console can also be opened by selecting [start]-[All Programs]-[Resource Orchestrator]-[ROR console].

Information

For details, refer to "Chapter 1 Login and Logout" in the "User's Guide VE".

Login

In the login screen, enter the following items, and click <Login>.

The ROR console is displayed after a successful login.

- User ID
- Password

Information

- During installation, enter the following user account name and password.
 - When Single Sign-On is configured
The name of the user account and password used for ServerView Operations Manager
 - When Single Sign-On is not configured
The user name and password of the user account specified in "2.1 Manager Installation"
- When logging in for the first time, the ROR console is displayed.
However, when Single Sign-On is configured, the ROR console is always displayed.
- Opening the ROR console in multiple Web browsers may not allow multi-user login.
To log in as a different user, start up a new Web browser from the Windows start menu.

Logout

To log out, select "Logout" in the global header, and click <OK> in the confirmation dialog.

Note

- If the Web browser is closed without logging out, the user may stay logged in, making it possible to access the ROR console without authentication.
It is advised that the users log out properly after using the ROR console or BladeViewer.
- If the ROR console has been opened simultaneously in several Web browser windows, those login sessions may also be terminated.

Exit

To exit the ROR console, simply close the Web browser window.

Chapter 4 License Setup and Confirmation

License Setup

When using Resource Orchestrator, it is necessary to configure the license first.

Use the following procedure to configure the license:

1. After logging into Resource Orchestrator, select the [Resource] tab, then select [Tools]-[Licenses] from the menu, and click <Add> in the displayed dialog.

The [Register License] dialog is displayed.

2. In the [Register License] dialog, enter the license key to register.

3. Click <OK>.

The license will be registered.

Confirming the License

Use the following procedure to confirm the registered license:

1. After logging into Resource Orchestrator, select the [Resource] tab, then select [Tools]-[Licenses] from the menu, and click the license name in the displayed dialog.

The [Licenses] dialog is displayed.



Note

-
- When "-" is displayed for "Number of Licenses", the same number of agents as the number of purchased licenses can be used.
-

Chapter 5 Registering Resources with Resource Orchestrator

This chapter explains how to register, change, and delete resources used by Resource Orchestrator.

The Resource Orchestrator manager must be completely installed beforehand.

In addition to the usual way of registering each resource individually, it is also possible to register or change registration settings of multiple resources together using the pre-configuration function.

- Registering or modifying resources individually

This method is used when the number of servers to be installed is small (from one to four), or when adding a similar number of servers to an existing environment.

For details on the order for registering the resources to manage with Resource Orchestrator, refer to "[5.1 Managed Resources and Registration Order](#)".

- Registering or modifying multiple resources collectively

This method is used when there are many (five or more) servers to be installed.

For information on registering or changing multiple resources in batches, refer to "Chapter 12 Pre-configuration for Registering and Changing Resources" in the "User's Guide VE".



Information

Backing up the admin server

The admin server should be backed up after the entire system has been completely set up, or after registering, changing, or deleting resources.

For details on backing up, refer to "9.2 Backup" in the "Operation Guide VE".

5.1 Managed Resources and Registration Order

This section explains managed resources and the registration order for resources.

Managed Resources

The following resources can be managed with Resource Orchestrator.

- VIOM
- VM Management Software
- Chassis
- Managed Servers
- LAN Switches
- LAN Switch Blades
- Power Monitoring Devices

Registration Order of Resources

Use the following procedure to register resources:

- When using blade servers

1. Register VIOM (when using VIOM)

Refer to "7.1 Registering VIOM Coordination" in the "User's Guide VE".

2. Register VM Management Software (when using VM Management Software)

Refer to "7.2 Registering VM Management Software" in the "User's Guide VE".

3. Register Chassis

Refer to "7.3.1 Registering Chassis" in the "User's Guide VE".

4. Register Managed Servers (within Chassis)

Refer to "7.3.2 Registering Blade Servers" in the "User's Guide VE".

5. Register LAN Switch Blades

For details, refer to "7.3.3 Registering LAN Switch Blades" in the "User's Guide VE".

6. Register Power Monitoring Devices

For details, refer to "7.7 Registering Power Monitoring Devices" in the "User's Guide VE".

- When using something other than a blade server

1. Register VIOM

Refer to "7.1 Registering VIOM Coordination" in the "User's Guide VE".

2. Register VM Management Software (when using VM Management Software)

Refer to "7.2 Registering VM Management Software" in the "User's Guide VE".

3. Register Managed Servers

Refer to "7.4.1 Registering Rack Mount or Tower Servers" in the "User's Guide VE".

4. Register LAN Switches

For details, refer to "7.4.2 Registering LAN Switches" in the "User's Guide VE".

5. Register Power Monitoring Devices

For details, refer to "7.7 Registering Power Monitoring Devices" in the "User's Guide VE".

Chapter 6 Settings for the HBA address rename Setup Service

This chapter explains settings for the HBA address rename setup service.

In Resource Orchestrator, configure the WWN on the servers according to the server operations, and adopt I/O virtualization (HBA address rename) that enables I/O control on the server side.

HBA address rename is enabled by setting the WWN of the managed server HBA from the admin server when a managed server is powered on. This WWN is kept by managed servers until powered off.

However, a managed server will not be able to receive its assigned WWN unless it can communicate with the admin server. If communication with the admin server fails, because of problems on the admin server or a failure of the managed server's NIC, the managed server will not start up properly as its HBA will not be set up with the correct WWN.

This can be avoided by using the HBA address rename setup service, which acts as a backup service in case of communication issues between the admin server and managed servers. This service, which must run on a server other than the admin server, can set up managed servers HBAs WWNs in the same way the admin server does.

For details on HBA address rename settings, refer to "7.4.3 Configuring HBA address rename" in the "User's Guide VE".

This service must be running in order to use HBA address rename.

Use the following procedure to configure the HBA address rename setup service.

1. Open the [HBA address rename setup service] dialog.

[Windows]

Select [start]-[All Programs]-[Resource Orchestrator]-[HBA address rename setup service].

[Linux]

Execute the following command while in a desktop environment.

```
# nohup /opt/FJSVrcvhh/bin/rcxhbactl start& <RETURN>
```

The [HBA address rename setup service] dialog is displayed.

2. Define the following settings:

Status

The status of the service is displayed. [Stopping] is displayed if the service is not running, and [Running] is displayed if the service is running.

IP address of admin server

Enter the IP address of the admin server.

Port number

Enter the port number that is used to communicate with the admin server. The port number at installation is 23461.

If the "rcxweb" port number of the admin server is changed, specify the number that has been changed.

The latest synchronous time

Displays the latest synchronization time.

This is the last time this service synchronized its data (managed server settings) with that of the admin server.

3. Click one of the following buttons:

- To Start This Service:

Click <Run>.

- To Stop This Service:

Click <Stop>.

- To Cancel the Operation:

Click <Cancel>.

To verify that this service is running properly, power off the admin server and confirm that managed servers can still start up normally.

Point

When the graphical mode cannot be used in a Linux environment, use the service rcvhb {stop | start | status} command to stop, start, or check the status of services after starting the HBA address rename setup service once.

When operating correctly, the descriptions are displayed as below.

```
# service rcvhb status
rservice is running...
pxeservice is running...
SystemcastWizard TFTP service is running...
```

Note

The following remarks apply to this service.

- Keep it [Running] at all times.
- Start it on only one server for each admin server.
- OS administrator privileges are required to start and stop this service.
- Do not operate it on the server where the manager is installed.
- The admin server and the servers configured with the HBA address rename setup service must be placed in the same segment of an admin LAN.

[Windows]

- In a clustered Manager configuration, this service can be run on the standby node. In this case, configure the startup settings following the procedure in the Manager Cluster Operation Settings.
After performing settings for this service following the procedure for cluster operation settings, it is not necessary to perform the above procedure for starting and stopping.
For details, refer to "[Appendix D Manager Cluster Operation Settings and Deletion](#)".

[Linux]

- In a clustered Manager configuration, this service can be run on the standby node. In this case, the above procedure should be skipped as configuration and control of the HBA address rename setup service is handled during setup of the cluster system.
For details, refer to "[Appendix D Manager Cluster Operation Settings and Deletion](#)".
-

Chapter 7 Installing Software and Registering Agents on Managed Servers

This chapter explains how to install software and register agents on managed servers.

Use the following procedure to install required software and register an agent on a for managed server.

After agent registration, the physical OS or VM host on which the agent was installed will be displayed in the server resource tree. Usually, a server agent is automatically registered during server registration. In that case, this procedure can be skipped.

It is not necessary to re-install an already-setup operating system, required software, or agent. Simply skip the steps that were already performed.

1. Install an OS

- a. Install the operating system on the managed server.
- b. Set up the admin LAN.

Set the admin LAN IP address that was chosen for this server in "7.2 IP Addresses (Admin LAN)" in the "Design Guide VE", as well as its corresponding network mask and default gateway.

Using storage devices in multi-path configurations

- Install a multi-path driver on a physical OS and VM hosts. For VM hosts, use the one provided by default by either the operating system or virtualization software, when one is available.
- When using SAN boot and HBA address rename, refer to "2. Settings for the HBA address rename Function" in "7.4.3 HBA address rename Settings" in the "User's Guide VE" to set the number of HBA paths used with HBA address rename for the number of HBA ports.
The server is automatically restarted using a multi-path configuration.
- When using SAN boot together with VIOM, follow the procedure described in "7.1.1 Registering VIOM Server Profiles" in the "User's Guide VE" to configure server profiles on the Web interface of ServerView Virtual-IO Manager.
After configuration, the server will be started using a multi-path configuration.
- When using SAN boot together with ESC, follow the procedure described in "10.1 Configuring WWN Settings for ETERNUS SF Storage Cruiser Integration" in the "User's Guide VE", and set the path name for HBA, WWNs of each HBA and the target CA, and Affinity Group. Also, correct the settings of the OS and OBP for multi-path use.
After configuration, the server will be started using a multi-path configuration.

Note

After configuration of agents, the server name (computer name for [Windows] [Hyper-V] or a system node name for [Linux] [Solaris] [VMware] [Xen] [KVM]) defined during OS installation should be set according to the following guidelines.

[Windows] [Hyper-V]

Specify up to 63 characters, including alphanumeric characters, underscores ("_"), and hyphens ("-").
The string cannot be composed solely of numbers.

[Linux] [VMware] [Xen] [KVM]

Specify up to 64 characters, including alphanumeric characters as well as the following symbols.

"%", "+", ",", "-", ".", "/", ":", "=", "@", "_", "~"

[Solaris]

Specify up to 24 characters, including alphanumeric characters, underscores ("_"), and hyphens ("-"). This name should start with an alphabetical character.

However, it is recommended that the name is comprised of the following characters defined in RFC (Request For Comment) 952, to take into consideration communication with other servers.

- Alphanumeric Characters
- Hyphens, ("-")
- Periods, (".") [Linux]

It is recommended not to use duplicate names for physical OS's, VM hosts, and VM guests. If duplicated names are used, those resources cannot be managed from the command-line.

2. Install Required Software

Install the software packages that are required for a managed server.

For details of the required software, refer to "2.4.2.2 Required Software" of the "Design Guide VE".

3. Install the Agent

Refer to "[2.2 Agent Installation](#)".

4. Register the Agent

Register the agent from the ROR console while the target server is running.

- a. In the ROR console server resource tree, right-click the target server, and select [Register]-[Agent] from the popup menu.

The [Register Agent] dialog is displayed.

- b. Select the Server OS category (physical OS or VM host).

- For Other than SPARC Enterprise Servers

For a Physical OS

Select [Windows/Linux].

For a VM Host

Select [VM Host], and enter the VM host login account information.

This login account information will be used by Resource Orchestrator to control and communicate with the registered VM host.

- For SPARC Enterprise Servers

For a Physical OS

Select "Solaris".

For a VM Host

Select "Solaris Containers", and enter the VM host login account information.

This login account information will be used by Resource Orchestrator to control and communicate with the registered VM host.

User ID

Enter the user ID to log in to the VM host. Specify a user ID that has VM host administrator authority.

Password

Enter the password of the user to log in to the VM host.

- c. Click <OK>.

The admin server starts to monitor and display server information obtained from the agent.



Note

- If "unknown" is displayed in the server resource tree for the status of a server in which the agent is installed, refer to "2.2 "unknown" Server Status" in "Troubleshooting" to solve the problem.

- When an agent is registered on a VM host, all VM guests running on that VM host are also registered automatically. Whenever a VM guest is created, modified, deleted, or moved on a registered VM host, the changes are automatically updated in the server resource tree.

The VM guest name displayed in the ROR console is either the VM name defined in its server virtualization software or the hostname defined in the guest OS.

The timing at which the hostname of a guest OS is detected and displayed varies according its server virtualization software. For details, refer to "D.3 Functional Differences between Products" of the "Design Guide VE".

- When performing system image backup or cloning image collection, it is necessary to either reboot the managed server or restart its "Related services" (explained in the "2.2 Starting and Stopping the Agent" section in the "Operation Guide VE") after server registration.

For details on how to restart the agent, refer to "2.2 Starting and Stopping the Agent" in the "Operation Guide VE".

- A server running a VM host can still be registered as a physical OS if "Windows/Linux" is selected in the [Server OS category] selection list. (Windows Server 2008 etc.)

A VM host server that was mistakenly registered as a physical OS should be deleted and re-registered as a VM host.

Chapter 8 Configuring Monitoring Information

Use the following procedure to configure the monitoring information.

1. In the ROR console server resource tree, right-click the target physical OS and the VM hosts, and select [Modify]-[Monitoring Settings] from the popup menu.

The [Configuring monitoring settings] dialog is displayed.

2. Define the following settings:

[Enable ping monitoring] checkbox

When using the ping command to monitor the admin LAN for the target physical OS or the VM host, and recovery for the error detection is enabled, select the checkboxes.

Information

- When performing these settings, use ping monitoring if the server status becomes "unknown".
- When the following conditions are satisfied for the physical OS and the VM host for which ping monitoring is enabled, message number 69111 will be output to the event log and recovery triggered. For details on the above message, refer to "Message number 69111" in "Messages".
 - The status of the primary server is "unknown"
 - The period with no response to the ping command is over the time-out value
 - The active server has not been placed into maintenance mode
 - The power of the chassis is not OFF (when using PRIMERGY BX servers)

Note

- As this setting uses ping monitoring on the admin LAN, recovery may be triggered even when operations are being performed.
- With target servers, if another Resource Orchestrator operation is being performed when recovery is triggered, recovery will not take place and monitoring will recommence.
- If the configured recovery process occurs and restoration is not possible, monitoring of the server will be suspended temporarily. After that, when the status of the server becomes "normal", monitoring will recommence.
- For VMware ESXi, this function is not supported.

Timeout(sec)

The time-out period for ping monitoring should be set as a value between 5 and 3,600 seconds.

One of conditions for recovery is that the amount of time for which there is no response to the "ping" command exceeds the specified time-out value.

Recovery method

Select a recovery operation from the following:

- Reboot
 - Perform reboot.
- Reboot (Forced)
 - Perform forced reboot.
- Switchover (*1)
 - Perform a switchover operation based on the spare server settings.

- Reboot+Switchover (*1)

First, perform reboot.

Reboot operations are only performed the number of times specified in the Number of reboots, and recovery operations end if it is recovered during the reboot cycle.

Perform switchover if recovery is not successful even after rebooting the specified number of times.

If a spare server has not been set, only rebooting will take place.

- Reboot(Forced)+Switchover (*1)

First, perform forced reboot.

Forced reboot operations are performed only the number of times specified in the Number of reboots, and recovery operations end if it is recovered during the reboot cycle.

Perform switchover if recovery is not successful even after forced rebooting the specified number of times.

If a spare server has not been set, only forced rebooting will take place.

Number of reboots

Specify the number of reboots or forced reboots as a number between one and three. When specifying twice or more, recovery will not be implemented when restoring.

3. Click <OK>.

*1: Cannot be selected with PRIMEQUEST.

Chapter 9 Server Switchover Settings

This chapter explains how to use server switchover settings and automatically recover from server failures.

9.1 Overview

Server switchover is a feature that allows the user to switch over applications from a primary server to a predefined spare server when the primary server fails or is stopped for maintenance.

It can also perform Auto-Recovery, which automatically switches applications over to a spare server when a hardware failure is detected on the primary server.

Server switchover can be realized through four different methods, as described below. The switchover method used by a given server is automatically selected when configuring its recovery settings. If HBA address rename settings were already made when applying recovery settings, the HBA address rename method will be automatically selected. Similarly, the VIOM server profile exchange method is automatically selected if a server profile was already assigned to the server in VIOM.

However, each method has its own restrictions regarding the supported hardware environment.

For details, refer to the corresponding "Note" in "2.5 Hardware Environment" in the "Design Guide VE".

- Backup and Restore Method

In a local boot environment, this method restores a system image backup to a spare server, which is then automatically started up. This is selected under the following cases.

- When a virtual WWN or boot configuration have not been set via the HBA address rename or VIOM server profile assigned to the primary server.
- Select the [Local-boot with SAN data (Backup and restore method)] checkbox when setting the spare server.

When HBA address rename or VIOM has been used to set a server profile for a server, the WWN and server profile also can be switched at server switchover.

After switchover, the operating system and its applications will resume on the spare server from the status they were in at the last system image backup.

Note that only the content of the first local disk (or boot disk) as seen by the BIOS of the managed server is subject to a backup or restore operation, including all partitions (Windows drives or Linux partitions) present on the boot disk.

However, since additional disks (disks used as data disks), are not subject to backup and restore, their content cannot be made accessible to the spare server with a server switchover.

When using more than one local disk, backup and restore of such additional data disks should be performed using external backup software.

However, when there are multiple sections on the first disk (Windows drives or Linux partitions), all sections become the target of backup and restore.

- HBA address rename Method

In a SAN boot environment, this method sets the WWN of a spare server's HBA to the same value as that originally set on the primary server. This allows the spare server to connect to and boot from the same boot disk that was used by the primary server. This method is used when HBA address rename settings have been made on the primary server. Because this method automatically starts the spare server from the primary server's boot disk, applications can be resumed without users being aware of the hardware replacement that occurred.

- VIOM Server Profile Exchange Method

This method is used in SAN boot environments where servers start from boot disks located in storage arrays. If the primary server fails, the WWN, MAC address, boot configuration, and network configuration set in its server profile are inherited by the spare server, which then automatically starts up from the same SAN disk. This method is used when a virtual WWN has been set via the VIOM server profile assigned to the primary server. Because this method automatically starts the spare server from the primary server's boot disk, applications can be resumed without users being aware of the hardware replacement that occurred.

- Storage Affinity Switchover Method

When a primary server fails in a SAN boot environment, changing the following configuration using storage management software enables access and startup from the same boot disk. When HBA WWNs are fixed, reconfiguring storage devices enables continuation of operations.

- Zoning settings for the Fibre Channel switches connected to servers

- Host affinity settings for storage CAs

The HBA address rename and VIOM profile exchange methods are also referred to as I/O virtualization methods.

For PRIMERGY BX servers, the network configuration (VLAN IDs of adjacent LAN switch ports or port groups) of the primary server will be inherited by the spare server when using the backup and restore method, HBA address rename method, or the VIOM server profile exchange method.

When using the VIOM server profile exchange or the backup and restore method, if a MAC address, boot configuration, or network configuration were assigned to the server (in its VIOM server profile), these settings will also be inherited by the spare server. Therefore, it is no longer necessary to re-configure applications or network devices that depend on MAC address values.

After two servers have been switched over, a failback operation can switch them back to their original configuration using the same switchover method. Conversely, server takeover is the operation that appoints the activated spare server as the new primary server instead of switching back servers to their original configuration.

Note

- When using ServerView Deployment Manager on the admin LAN, the backup and restore method and HBA address rename are disabled. For details, refer to "[Appendix B Co-Existence with ServerView Deployment Manager](#)".
- Auto-Recovery occurs when a hardware failure is detected. However, it does not occur when the operating system has stopped as a result of a software error or when the operating system is automatically rebooted. Refer to "[9.4 Conditions Required for Auto-Recovery](#)" for details. Furthermore, since the Auto-Recovery is driven by a hardware failure, it prioritizes a fast recovery to a spare server instead of collecting an OS memory dump (which would be used to troubleshoot an OS failure). Thus, even if a memory dump was set to be collected in the event of an OS failure, server recovery will take precedence and the memory dump will not be collected.
- Server switchover can be realized using one of the following methods.
 - Backup and Restore Method
 - HBA address rename Method
 - VIOM Server Profile Exchange Method
 - Storage Affinity Switchover Method
- When configuring the HBA address rename function as the switchover method, first confirm that the HBA address rename settings have been configured properly before configuring the server switchover settings.
- When server switchover is conducted using a Hyper-V VM host, prepare more than two physical NICs. The network which VM hosts, such as the admin LAN for VM hosts, use to communicate with external servers should be dedicated only to physical servers, and not be configured for virtual networks. In a network environment that has external virtual networks configured, disable all virtual networks for VM hosts. For details, refer to "D.2 Configuration Requirements" in the "Design Guide VE".
- It is not possible to specify spare servers for individual VM guests. It is either possible to store VM guests on a SAN or NAS shared disk and assign a spare server to the VM host, or use the VM high-availability feature provided by the server virtualization software used. For more details on the high-availability features available for each server virtualization software, refer to "D.3 Functional Differences between Products" in the "Design Guide VE". Switchover using Resource Orchestrator, and the high-availability of server virtualization software can be used together. When using a high-availability feature of server virtualization software, do not include spare servers of Resource Orchestrator in VM hosts as spare servers.

[VMware]

When using a high-availability feature (VMware HA) of server virtualization software, perform high-availability configuration again when performing server switchover or failback of Resource Orchestrator.
- When primary and spare servers are placed in different chassis, and both servers are connected to LAN switch blades operating in IBP mode, server switchover only works if the following conditions are met.
 - LAN switch blades are PRIMERGY BX900/BX400

- The same port group name is set for both LAN switch blades
- When using Intel PROSet for LAN redundancy, the switchover destination server may inherit the same MAC address as that of the source server, as Intel PROSet keeps an internal definition of MAC addresses. When using Intel PROSet for LAN redundancy, the switchover destination server may inherit the same MAC address as that of the source server, as Intel PROSet keeps an internal definition of MAC addresses. To avoid communication issues caused by MAC address conflicts, please be sure to re-configure MAC addresses on the destination server following a server switchover.
- For servers other than blade servers, configuration is not possible when there are managed servers belonging to different subnets from the admin server.
- Configuration is not possible when there are managed servers whose admin LAN NIC configurations are different from the primary server.
- Server switchover can be performed, even if the NIC configurations used for HBA address rename setup service on the primary server and spare server are different. After server switchover is performed, the HBA address rename setup service may not operate depending on the network configuration. Therefore, the NIC configurations used for the HBA address rename setup service should be the same on both the primary server and the spare server.

In environments where there are servers running physical OS's and servers with VM hosts and VM guests, if they both use HBA address rename or VIOM, by combining the following settings it is possible for a physical OS and a VM guest to share a spare server.

For details, refer to "[Figure 9.3 Sharing a Spare Server Between Physical OS's and VM Guests \(High-availability Function of Server Virtualization Software\)](#)" in "9.2 Configuration".

- a. Specify a VM host as the spare server used to recover VM guests within the high-availability feature (VMware HA) of the server virtualization software used.
- b. Once the above settings have been made on a physical OS, a server failure will trigger the following recovery operations.

If the failed server was running a physical OS, Resource Orchestrator will shut down the VM host on the spare server and switch the failed physical OS over to the spare server. If the failed server was a VM host running VM guests, the high-availability feature provided with the server virtualization software will recover the VM guests on the spare VM host server. Since physical OS's and VM guests share a common spare server, the two types of recovery described above can perform together: once one type of recovery occurs on a spare server, another type of recovery can no longer be performed on that same spare server.

Information

- Server switchover based on backup and restore takes approximately 3 minutes, plus the time required to restore the system image. Image restoration time depends on different factors such as disk space and network usage, but as an estimate, a disk of 73GB will take 30 to 40 minutes (the transfer of the system images takes between 10 to 20 minutes, while system restarts and other configuration changes take another 20 minutes).
- Server switchover based on HBA address rename takes approximately 5 minutes, plus the time required to start up the original operating system and services on the spare server. If a server OS was running on the spare server, the time required to shut down the spare server must also be included.

9.2 Configuration

This section provides examples of switchover configurations for each different switchover method.

Each method has its own restrictions regarding the supported hardware environment.

For details, refer to the corresponding "Note" in "2.5 Hardware Environment" in the "Design Guide VE".

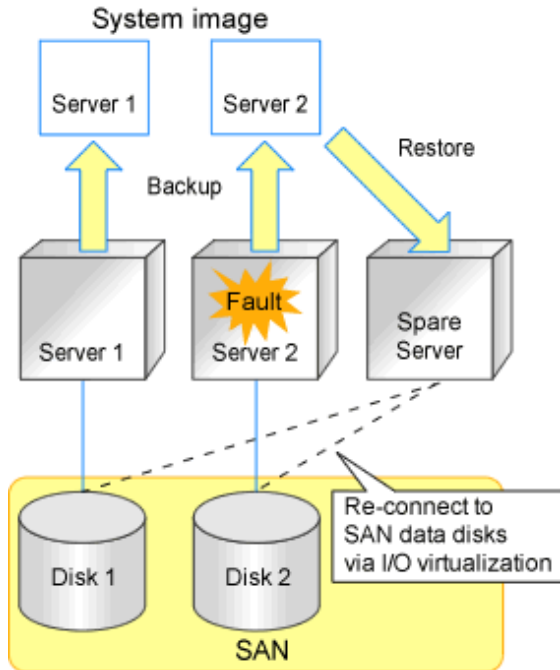
- Spare server configuration for local boot servers

A spare server should be set aside for servers in local boot environments.

When a primary server fails, a system image (that must be backed up beforehand) will be restored to the spare server, and the spare server will be started up. A spare server can be shared by multiple primary servers.

If a local boot server is using SAN storage for data storing purposes, I/O virtualization can make this SAN storage space accessible to the spare server.

Figure 9.1 Spare Server Configuration for Local Boot Servers

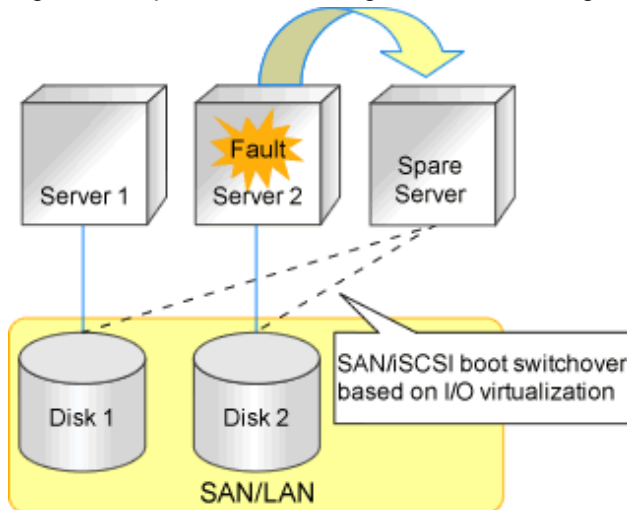


- Spare server configuration for booting from SAN/iSCSI storage servers (using virtual I/O)

At least one spare server using virtual I/O should be set aside for servers in a SAN/iSCSI boot environment.

When a primary server fails, the WWN set on its HBA or MAC address, boot configuration, and network configuration set on its NIC is inherited by the spare server, which can then access and start up from the same boot disk. A spare server can be shared by multiple primary servers.

Figure 9.2 Spare Server Configuration for Booting from SAN/iSCSI Storage Servers

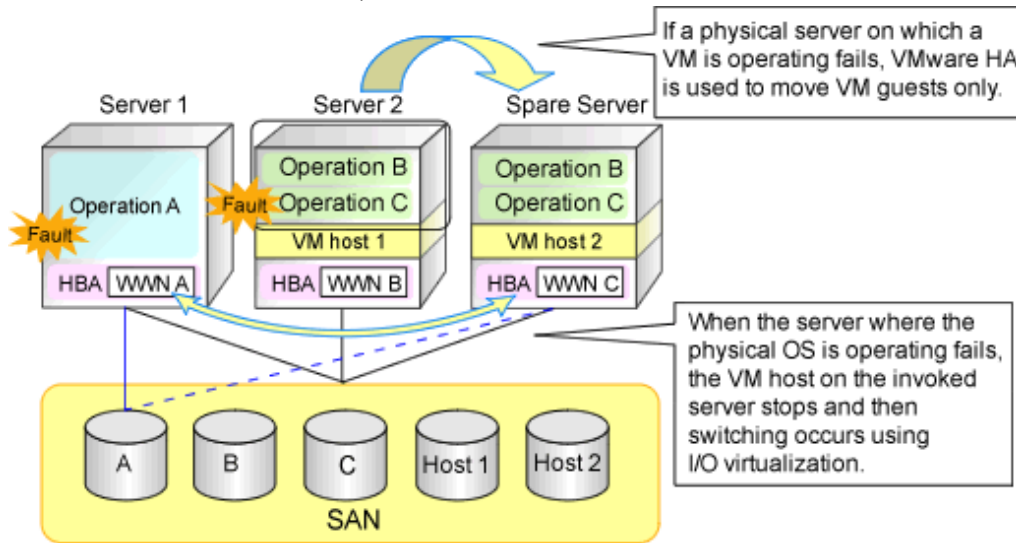


For spare server configurations based on I/O virtualization, a spare server can be shared by multiple physical OS's and VM guests (using the high-availability feature provided with their server virtualization software). For details on the server virtualization software supporting this configuration, refer to "D.1 Common Functions of Server Virtualization Software" in the "Design Guide VE".

In this case, spare servers should be set up as a VM hosts booting from a SAN, so that when a physical server hosting VM guests experiences a failure, the high-availability feature provided with their server virtualization software can be used to transfer the VM guests to this spare VM host.

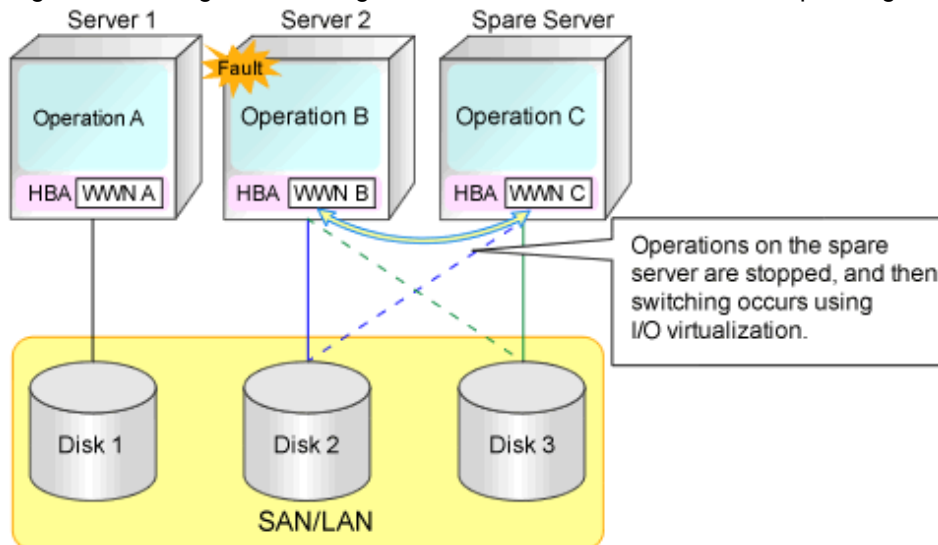
If a server running a physical OS fails, its boot disk will be reconnected to the spare server by means of an HBA address rename. When this happens, the spare server is halted, reconnected to the primary server's boot disk, and started up as the new active server.

Figure 9.3 Sharing a Spare Server Between Physical OS's and VM Guests (High-availability Function of Server Virtualization Software)



In server configurations using I/O virtualization, servers on which a server OS is operating can be used for spare servers. If a primary server fails and its spare server boots from a SAN, the OS of the spare server will be stopped. After that the boot disk is connected to the spare server using I/O virtualization, and the server started.

Figure 9.4 Configuration Using a Server on which a Server OS is Operating as a Spare Server



Note

A spare server cannot be shared by a local boot server, a SAN boot server, and an iSCSI boot server.

Furthermore, if the primary server is a local boot environment, the same server cannot be used as a spare server between the configurations 1 and 2 shown below.

1. In a SAN data environment using a physical WWN or VIOM
2. When using the Red Hat Enterprise Linux 6 ext4 file system or on a server using UEFI

- Spare server configuration for booting from SAN storage servers (using storage management software)

Storage management software should be set aside for servers in SAN boot environments.

When a primary server fails, changing the following configuration using storage management software enables access and startup from the same boot disk. A spare server can be shared by multiple primary servers.

- Zoning settings for the Fibre Channel switches connected to servers
- Host affinity settings for storage CAs

9.3 Server Switchover Conditions

The following conditions must be satisfied for manual server switchover, failback, and Auto-Recovery to function correctly.

Conditions for Spare Servers

The spare server must be identical to the active server in the ways listed below.

If these conditions are not satisfied, allocation of a spare server may not be possible, server switchover may fail, or the server may malfunction after the switchover is completed.

- Server Model
- Server Hardware Configuration

The following settings for optional cards and expansion boards must be the same.

- The locations they are mounted in
- The number and sizes of local disks
- RAID settings

There are no other hardware conditions for the spare server (such as memory capacity, number of CPUs and CPU clock speed). However, the hardware configuration of the spare server must be capable of running the operating system and applications running on the primary server.

- BIOS Settings

The same BIOS settings must have been made for all servers according to the procedure in "6.2.7 Configuring BIOS Settings for Managed Servers" in the "Design Guide VE".

- OBP Settings

For SPARC Enterprise, the OBP settings to start automatically from SAN servers of the same target disk must have been made according to the procedure in "6.2.9 Configuring OBP (Open Boot Prom) Settings (SPARC Enterprise Servers)" in the "Design Guide VE".

With the storage affinity switchover method, as setting changes are only performed for Fibre Channel switch storage devices, it is necessary to perform configuration of servers that will be changed during switchover, and HBA and OBP settings.

- LAN and SAN Access Scope

The spare server must use the same network redundancy method, have the same redundancy paths, and have access to the same network and storage devices. Note that LAN or fibre channel switches connected in a cascade configuration are viewed as a single device.

- Firewall

There must be no firewall between the primary server and the spare server.

- Subnet

For servers other than blade servers, the primary server and the spare server must belong to the same subnet.

If a spare server is shared by a physical OS and one or more VM guests (using the high-availability feature provided with their server virtualization software), the spare server must be configured for SAN boot using I/O virtualization.

For details, refer to "[Figure 9.3 Sharing a Spare Server Between Physical OS's and VM Guests \(High-availability Function of Server Virtualization Software\)](#)" in "9.2 Configuration".

When using a server on which a server OS is operating as a spare server, both the primary server and spare server should be in a configuration that uses I/O virtualization.

For details, refer to ["Figure 9.4 Configuration Using a Server on which a Server OS is Operating as a Spare Server"](#) in ["9.2 Configuration"](#).

Also, if more than two local disks are connected to a spare server in a backup/restore configuration, and if the partitioning of the disks coming after the first in the boot order is different from the first disk, a warning message may be displayed at restart, or the operating system may not restart, causing any switchovers initiated to fail. After configuring the spare server, verify that it is operating properly by performing a switchover and failback.

If the operation fails, configure the partitions other than the first boot disk of the spare server to match the configuration of the primary server, or set up the primary server configuration so that it does not depend on any disk other than the first, using automatic service startups, and re-labeling the Windows drives as necessary.

With blade servers, if the primary server and spare server do not belong to the same subnet, if server switchover is performed to the spare server it is necessary that the VLAN ID or port group settings of the internal LAN switch ports are adjusted automatically.

For details on how to configure the settings, refer to ["18.2 Server Switchover Settings"](#) in the ["User's Guide VE"](#).

Conditions for Server Switchover

The following conditions must be satisfied for a server switchover or Auto-Recovery to succeed:

- The server configuration cannot already be switched over (the primary server must be the active server)
- The status of the spare server must be "normal", "warning", or "stop". If a VM host has been installed on the spare server(for VMware HA), its status must be either "normal" or "warning"
- If a spare server is shared by more than one active server, none of the other primary servers may be switched over to that spare server
- If the server is in a local boot environment, its system image must have been backed up

Conditions for Server Failback

The following conditions must be satisfied for server failback to succeed:

- The active server must have been switched over to the spare server
- The status of the primary server must be "stop"
- If the server is in a local boot environment, its system image must have been backed up

9.4 Conditions Required for Auto-Recovery

This section explains the conditions required for auto-recovery.

Auto-Recovery Using Server Switchover Settings

A server for which Auto-Recovery is enabled will be automatically switched over to its spare server if Resource Orchestrator detects both a failure from the server hardware and determines that its physical OS (or VM host) has stopped.

- Detecting hardware failures from servers

A hardware failure can be detected by an "Error" level SNMP trap failure notification sent to the admin server from either the ServerView Agents or the server management unit. Alternatively, Resource Orchestrator can detect a failure by periodically polling the status of each managed server.

Detectable hardware failures

- CPU faults
- Memory errors
- Temperature abnormalities

- Fan failures

As a result of a FAN failure, it is detected as a temperature abnormality.

- Detecting that a physical OS (or VM host) has stopped

A physical OS (or VM host) is seen to have stopped abnormally when the following conditions are met:

- PRIMERGY BX series servers

An abnormal server status is obtained from a server management unit, and it is not possible to communicate with either the ServerView Agents or the Resource Orchestrator agent

- For rack mount, tower, and SPARC Enterprise servers

Communication using the ping command is unavailable

Auto-Recovery Using Monitoring Information Settings

When ping monitoring using monitoring information is enabled, server switchover is automatically performed when there is no response from physical OS on servers or VM hosts, and restoration by executing reboot fails.

The recovery process can be changed by configuring settings. For the setting method, refer to "[Chapter 8 Configuring Monitoring Information](#)".

- No response detected by ping monitoring

When the period with no response in the ping command is over the time-out value, no response is detected.

Note

- Notification of hardware failures on rack mount servers, tower servers, and SPARC Enterprise servers is only detected by SNMP traps.
- Auto-Recovery is not triggered on servers that are in maintenance mode.
- Even if a hardware failure is detected, Auto-Recovery will not be triggered if no response is received from the target server. In such cases, shutting down or restarting the server will temporarily stop the operating system, triggering an automatic switchover as the conditions for Auto-Recovery will be met. Under such conditions, automatic switchovers can be prevented by setting the server to maintenance mode before shutdown or restart.

Chapter 10 Saving Environment Settings

This chapter explains how to save environment settings.

The configuration of a Resource Orchestrator setup can be saved to guard against unexpected problems. Use the admin server backup function and troubleshooting data collection command to save settings.

This troubleshooting data can be used in conjunction with the data later collected when a problem occurs for a more effective investigation, and should therefore be stored with caution.



See

- For details on the admin server backup command, refer to "Chapter 9 Backing Up and Restoring Image Files" in the "Operation Guide VE".
- For collecting troubleshooting data, refer to "1.1 Collecting Troubleshooting Data (Virtual Edition)".

Chapter 11 Uninstallation

This chapter explains the uninstallation of ServerView Resource Orchestrator.

The uninstallation of managers, agents, and the HBA address rename setup service is performed in the following order:

1. Manager Uninstallation

Refer to "[11.1 Uninstall the Manager](#)".

2. Agent Uninstallation

Refer to "[11.2 Agent Uninstallation](#)".

3. HBA address rename setup service Uninstallation

For uninstallation, refer to "[11.3 HBA address rename Setup Service Uninstallation](#)".

When uninstalling a Resource Orchestrator manager, specify Resource Orchestrator using "Uninstall (middleware)" first, and uninstall the manager.

"Uninstall (middleware)" is a common tool for Fujitsu middleware products.

The Resource Orchestrator Manager is compatible with "Uninstall (middleware)".

When a Resource Orchestrator Manager is installed, "Uninstall (middleware)" is installed first, and then "Uninstall (middleware)" will control the installation and uninstallation of Fujitsu middleware products. If "Uninstall (middleware)" has already been installed, the installation is not performed.

For the uninstallation of Uninstall (middleware), refer to "[11.4 Uninstallation of "Uninstall \(Middleware\)""](#)".

11.1 Uninstall the Manager

The uninstallation of managers is explained in the following sections.

The procedure for manager uninstallation is given below.

- Preparations

Refer to "[11.1.1 Preparations](#)".

- Uninstallation

Refer to "[11.1.2 Uninstallation \[Windows Manager\]](#)" or "[11.1.3 Uninstallation \[Linux Manager\]](#)".

11.1.1 Preparations

This section explains the preparations and checks required before commencing uninstallation.

Pre-uninstallation Advisory Notes

- Checking system images and cloning images

The system and cloning images collected by this product are deleted.

If changed from the default, it remains in the directory storing the image file.

- Checking HBA address rename

When using HBA address rename, the manager sets the WWN for the HBA of each managed server.

When uninstalling a manager be sure to do so in the following order:

1. Delete servers (*1)

2. Manager Uninstallation

*1: For the server deletion method, refer to "11.2 Deleting Managed Servers" in the "User's Guide VE".

Note

When using HBA address rename, if the manager is uninstalled without servers being deleted, the WWNs of the servers are not reset to the factory default values.

Ensure uninstallation of managers is performed only after servers are deleted.

When operating without resetting the WWN, if the same WWN is setup on another server, data may be damaged if the volume is accessed at the same time.

Also, when operating managers in cluster environments, release cluster settings before uninstalling managers. For how to release cluster settings, refer to "[Appendix D Manager Cluster Operation Settings and Deletion](#)".

- Back up (copy) certificates

When operating managers in cluster environments, back up (copy) certificates before performing uninstallation.

Manager certificates are stored in the following folders:

[Windows Manager]

Drive_name:\Fujitsu\ROR\SVROR\certificate

[Linux Manager]

Shared_disk_mount_point/Fujitsu/ROR/SVROR

- Definition files

All definition files created for using Resource Orchestrator will be deleted.

If the definition files are necessary, before uninstalling Resource Orchestrator back up (copy) the folder below to another folder.

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvmr/customize_data

11.1.2 Uninstallation [Windows Manager]

The procedure for manager uninstallation is given below.

Before uninstalling this product, check that the preparations given in "[11.1.1 Preparations](#)" have been performed.

1. Log on to Windows as the administrator.

Log on to the system from which the manager is to be uninstalled. Log on using the Administrator account.

2. Start the uninstaller. Select [Start]-[All Programs]-[Fujitsu]-[Uninstall (middleware)] from the Windows menu. Click the product name then <Remove>, and the uninstallation window will open.

Note

- Any updates that have been applied to Resource Orchestrator will be deleted during uninstallation.

- After uninstallation, the *installation_folder* (by default, C:\Fujitsu\ROR or C:\ProgramFiles(x86)\Resource Orchestrator) may remain. If they are not necessary, delete the following folders (along with files contained in the folders) and files.

- The *Installation_folder* (by default, C:\Fujitsu\ROR or C:\ProgramFiles(x86)\Resource Orchestrator) and its contents (Confirm whether folders can be deleted referring to the caution below.)

11.1.3 Uninstallation [Linux Manager]

The procedure for manager uninstallation is given below.

Before uninstalling this product, check that the preparations given in "[11.1.1 Preparations](#)" have been performed.

1. Log in to the system as the OS administrator (root).

Log in to the managed server from which Resource Orchestrator will be uninstalled, using root.

2. Launch the uninstallation command (cimanager.sh).

Perform uninstallation according to the uninstaller's interactive instructions.

```
# /opt/FJSVcir/cimanager.sh -c <RETURN>
```

Note

- When the PATH variable has been configured to enable execution of UpdateAdvisor (Middleware) commands from a user-defined location, performing uninstallation will delete any patches that have been applied to Resource Orchestrator so there is no need to return it to the state prior to application.
When the PATH variable has not been configured, return it to the state prior to application before performing uninstallation.
- If a manager is uninstalled and then reinstalled without agents being deleted, it will not be able to communicate with agents used before uninstallation.
In this case, the certificates to indicate that it is the same manager are necessary.
After installation, manager certificates are stored in the following directory:
`/etc/opt/FJSVrcvmr/opt/FJSVssmgr/current/certificate`
- When uninstalling the manager, the certificates are backed up in the following directory.
When reinstalling a manager and using the same certificates, copy the backed up certificates to the above folder.
`/var/tmp/back/site/certificate`
- If the certificates backed up on uninstallation are not necessary, delete them manually.
When operating managers in cluster environments, back up the certificates as indicated in the preparations for uninstallation.
When reinstalling a manager in a cluster environment and using the same certificates, copy the backed up certificates from the primary node to the above folders.
- After uninstallation, when a password is saved using the rcxlogin command, the password saved in the following directory remains depending on the user account for an OS on which the rcxlogin commands are executed. When re-installing the manager, delete it.
`/Directory_set_for_each_user's_HOME_environment_variable/rcx/`

11.2 Agent Uninstallation

The uninstallation of agents is explained in the following sections.

11.2.1 Uninstallation [Windows] [Hyper-V]

This section explains the procedure for uninstallation of agents.

1. Log on to Windows as the administrator.

Log on to the system from which the agent is to be uninstalled. Log on using the Administrator account.

2. Delete agents.

Open "Add or Remove Programs" from the Windows Control Panel, and if "ServerView Resource Orchestrator Agent" is not displayed on the [Add or Remove Programs] window, delete any remaining resources manually.

Information

For Windows Server 2008, select "Programs and Features" from the Windows Control Panel.

3. The [Confirm Uninstall] dialog will be displayed.

Click <OK>.

Information

The services of Resource Orchestrator are automatically stopped and deleted.

4. When uninstallation is completed, the confirmation window will be displayed.

Click <Finish>.

Note

- Any updates that have been applied to Resource Orchestrator will be deleted during uninstallation.
- When uninstallation is stopped due to errors (system errors or processing errors such as system failure) or cancellation by users, resolve the causes of any problems, and then attempt uninstallation again.

If uninstallation fails even when repeated, the executable program used for uninstallation may have become damaged somehow.

In this case, set the first Resource Orchestrator DVD-ROM, open the command prompt and execute the following command:

```
>"DVD-ROM_drive\DISK1\Agent\Windows\agent\win\setup.exe" /z"UNINSTALL" <RETURN>
```

Open "Add or Remove Programs" from the Windows Control Panel, and if "ServerView Resource Orchestrator Agent" is not displayed on the [Add or Remove Programs] window, delete any remaining folders manually.

Information

For Windows Server 2008, select "Programs and Features" from the Windows Control Panel.

11.2.2 Uninstallation [Linux] [VMware] [Xen] [KVM] [Oracle VM]

This section explains the procedure for uninstallation of agents.

1. Log in to the system as the OS administrator (root).

Log in to the managed server from which Resource Orchestrator will be uninstalled, using root.

2. Execute the rcxagtuninstall command.

Executing this command performs uninstallation, and automatically deletes the packages of Resource Orchestrator.

```
# /opt/FJSVrcxat/bin/rcxagtuninstall <RETURN>
```

When uninstallation is completed successfully, the following message will be displayed.

```
INFO : ServerView Resource Orchestrator Agent was uninstalled successfully.
```

If uninstallation fails, the following message will be displayed.

```
ERROR : Uninstalling package_name was failed.
```

Information

When the uninstaller of Resource Orchestrator is started, its services are stopped.

3. If uninstallation fails, use the rpm command to remove the packages given in the message, and start the process from 1. again.

```
# rpm -e package_name <RETURN>
```



Note

- When the PATH variable has been configured to enable execution of UpdateAdvisor (Middleware) commands from a user-defined location, performing uninstallation will delete any patches that have been applied to Resource Orchestrator so there is no need to return it to the state prior to application.

When the PATH variable has not been configured, return it to the state prior to application before performing uninstallation.

- After uninstallation, the installation directories and files below may remain. In that case, delete any remaining directories and files manually.

Directories

- /opt/FJSVnrmrp
- /opt/FJSVrcxat
- /opt/FJSVrcximg
- /opt/FJSVrcxkvm
- /opt/FJSVssagt
- /opt/FJSVssqc
- /opt/systemcastwizard
- /etc/opt/FJSVnrmrp
- /etc/opt/FJSVrcxat
- /etc/opt/FJSVssagt
- /etc/opt/FJSVssqc
- /var/opt/systemcastwizard
- /var/opt/FJSVnrmrp
- /var/opt/FJSVrcxat
- /var/opt/FJSVssagt
- /var/opt/FJSVssqc

Files

- /boot/clcomp2.dat
- /etc/init.d/scwagent
- /etc/scwagent.conf

11.2.3 Uninstallation [Solaris]

This section explains the procedure for uninstallation of agents.

1. Log in to the system as the OS administrator (root).

Log in to the managed server from which Resource Orchestrator will be uninstalled, using root.

2. Execute the rcxagtuninstall command.

Executing this command performs uninstallation, and automatically deletes the packages of Resource Orchestrator.

```
# /opt/FJSVrcvat/bin/rcxagtuninstall <RETURN>
```

When uninstallation is completed successfully, the following message will be displayed.

```
INFO : ServerView Resource Orchestrator Agent was uninstalled successfully.
```

If uninstallation fails, the following message will be displayed.

```
ERROR : Uninstalling package_name was failed.
```

Information

When the uninstaller of Resource Orchestrator is started, its services are stopped.

If uninstallation fails, use the `pkgrm` command to remove the packages given in the message, and start the process from 1. again.

```
# pkgrm package_name <RETURN>
```

Note

- When the `PATH` variable has been configured to enable execution of UpdateAdvisor (Middleware) commands from a user-defined location, performing uninstallation will delete any patches that have been applied to Resource Orchestrator so there is no need to return it to the state prior to application.
When the `PATH` variable has not been configured, return it to the state prior to application before performing uninstallation.
- After uninstallation, the installation directories below may remain. In that case, delete any remaining directories manually.
 - `/opt/FJSVrcxat`
 - `/etc/opt/FJSVrcxat`
 - `/var/opt/FJSVrcxat`

11.3 HBA address rename Setup Service Uninstallation

This section explains uninstallation of the HBA address rename setup service.

11.3.1 Uninstallation [Windows]

The procedure for uninstallation of the HBA address rename setup service is given below.

1. Log on to Windows as the administrator.

Log on to the system from which the HBA address rename setup service is to be uninstalled. Log on using the Administrator account.

2. Delete the HBA address rename setup service.

Open "Add or Remove Programs" from the Windows Control Panel, and select "ServerView Resource Orchestrator HBA address rename setup service" and delete it from the [Add or Remove Programs] window.

Information

For Windows Server 2008 or Windows Vista, select "Programs and Features" from the Windows Control Panel.

3. The [Confirm Uninstall] dialog will be displayed.

Click <OK>.

Information

The services of Resource Orchestrator are automatically stopped and deleted.

4. When uninstallation is completed, the confirmation window will be displayed.

Click <Finish>.

Note

- Any updates that have been applied to Resource Orchestrator will be deleted during uninstallation.
- When uninstallation is stopped due to errors (system errors or processing errors such as system failure) or cancellation by users, resolve the causes of any problems, and then attempt uninstallation again.

If uninstallation fails even when repeated, the executable program used for uninstallation may have become damaged somehow.

In this case, set the first Resource Orchestrator DVD-ROM, open the command prompt and execute the following command:

```
>"DVD-ROM_drive\DISK1\HBA\Windows\hbaar\win\setup.exe" /z"UNINSTALL" <RETURN>
```

Open "Add or Remove Programs" from the Windows Control Panel, and if "ServerView Resource Orchestrator HBA address rename setup service" is not displayed on the [Add or Remove Programs] window, delete any remaining folders manually.

Information

For Windows Server 2008 or Windows Vista, select "Programs and Features" from the Windows Control Panel.

11.3.2 Uninstallation [Linux]

The procedure for uninstallation of the HBA address rename setup service is given below.

1. Log in to the system as the OS administrator (root).

Log in to the managed server from which Resource Orchestrator will be uninstalled, using root.

2. Execute the rcxhbauninstall command.

```
# /opt/FJSVrcvhb/bin/rcxhbauninstall <RETURN>
```

Starting the uninstaller displays the following message which explains that before uninstallation the Resource Orchestrator services will be automatically stopped.

```
Any Resource Orchestrator service that is still running will be stopped and removed.  
Do you want to continue ? [y,n,?,q]
```

To stop the services and uninstall Resource Orchestrator enter "y", to discontinue the uninstallation enter "n".

If "n" or "q" is entered, the uninstallation is discontinued.

If "?" is entered, an explanation of the entry method will be displayed.

3. Enter "y" and the uninstallation will start.

When uninstallation is completed successfully, the following message will be displayed.

```
INFO : ServerView Resource Orchestrator HBA address rename setup service was uninstalled successfully.
```

If uninstallation fails, the following message will be displayed.

```
ERROR : Uninstalling "package_name" was failed
```

4. If uninstallation fails, use the rpm command to remove the packages given in the message, and start the process from 1. again.

```
# rpm -e package_name <RETURN>
```

Note

- When the PATH variable has been configured to enable execution of UpdateAdvisor (Middleware) commands from a user-defined location, performing uninstallation will delete any patches that have been applied to Resource Orchestrator so there is no need to return it to the state prior to application.
When the PATH variable has not been configured, return it to the state prior to application before performing uninstallation.
- After uninstallation, the installation directories below may remain. In that case, delete any remaining directories manually.
 - /opt/FJSVrcvhb
 - /opt/FJSVscw-common
 - /opt/FJSVscw-tftpsv
 - /etc/opt/FJSVrcvhb
 - /etc/opt/FJSVscw-common
 - /etc/opt/FJSVscw-tftpsv
 - /var/opt/FJSVrcvhb
 - /var/opt/FJSVscw-common
 - /var/opt/FJSVscw-tftpsv

11.4 Uninstallation of "Uninstall (Middleware)"

The uninstallation of "Uninstall (middleware)" is explained in this section.

Note

- When uninstalling Resource Orchestrator, specify Resource Orchestrator using "Uninstall (middleware)" first, and uninstall it.
- "Uninstall (middleware)" also manages product information on Fujitsu middleware other than Resource Orchestrator. Do not uninstall Uninstall (middleware)" unless it is necessary for some operational reason.

In the event of accidental uninstallation, reinstall it following the procedure below.

[Windows]

1. Log in to the installation machine as the OS administrator (root).
2. Set the first Resource Orchestrator DVD-ROM.
3. Execute the installation command.

```
>DVD-ROM_drive\DISK1\CIR\cirinst.exe <RETURN>
```

[Linux]

1. Log in to the system as the superuser (root).
2. Set the first Resource Orchestrator DVD-ROM.
3. Execute the following command to mount the DVD-ROM.

If the auto-mounting daemon (autofs) is used for DVD-ROM auto-mounting, the installer fails to start due to its "noexec" mount option.

```
# mount -t iso9660 -r /dev/hdc DVD-ROM_mount_point <RETURN>
# cd DVD-ROM_mount_point <RETURN>
```

4. Execute the installation command.

```
# ./DISK1/CIR/cirinst.sh <RETURN>
```

Information

To uninstall "Uninstall (middleware)", follow the procedure below.

1. Start "Uninstall (middleware)" and check that other Fujitsu middleware products do not remain.

The starting method is as follows.

[Windows]

Select [Start]-[All Programs]-[Fujitsu]-[Uninstall (middleware)].

[Linux]

```
# /opt/FJSVcir/bin/cimanager.sh [-c] <RETURN>
```

To start it in command mode, specify the -c option. If the -c option is not specified, it will start in GUI mode if the GUI has been configured, or start in command mode otherwise.

Note

If the command path contains a blank space, it will fail to start. Do not specify a directory with a name containing blank spaces.

2. After checking that no Fujitsu middleware product has been installed, execute the following uninstallation command.

[Windows]

```
>%SystemDrive%\FujitsuF4CR\bin\cirremove.exe <RETURN>
```

[Linux]

```
# /opt/FJSVcir/bin/cirreomve.sh <RETURN>
```

3. When "This software is a common tool of Fujitsu products. Are you sure you want to remove it? [y/n]:" is displayed, enter "y" to continue. Uninstallation will be completed in seconds.
4. After uninstallation is complete, delete the following directory and contained files.

[Windows]

%SystemDrive%\FujitsuF4CR

[Linux]

/var/opt/FJSVcir

Appendix A Coordination with Other Products

This appendix explains how to coordinate Resource Orchestrator with other products.

A.1 Coordination with BMC BladeLogic Server Automation

This section explains how to coordinate Resource Orchestrator with BMC's server automation software BMC BladeLogic Server Automation.

External Software

Resource Orchestrator can be coordinate with the software in the BMC BladeLogic Server Automation Suite 8.0 or later.

Functional Overview

Through coordination, the following becomes possible:

- Coordination of registration and deletion of managed servers

When registration or deletion of managed servers is performed using Resource Orchestrator, the managed servers are automatically registered or deleted from BMC BladeLogic Server Automation. When Resource Orchestrator and BMC BladeLogic Server Automation both manage a server in the same environment, this coordination eases the workload of the staff responsible for server registration.

- Coordination of cloning and software deployment

Coordination of Resource Orchestrator's cloning function and BMC BladeLogic Server Automation's software deployment function enables deployment of software to servers installed through cloning. This coordination eases the workload of installing software that cannot be deployed using cloning images (software that saves environment specific information such as MAC addresses on installation) on managed servers.

Function Details

- Common notes
 - The BMC BladeLogic Server Automation processes and process results resulting from execution of coordination are displayed as Resource Orchestrator processes in the recent operations area of the ROR console.
 - Resource Orchestrator processes are given priority in the order of execution. If Resource Orchestrator processes terminate abnormally, BMC BladeLogic Server Automation processes will not be executed.
 - If Resource Orchestrator processes are completed normally, but BMC BladeLogic Server Automation processes terminate abnormally, they will be displayed as errors in the recent operations area of the ROR console.
 - Check the details of BMC BladeLogic Server Automation processes that terminated abnormally on the Server Automation console of BMC BladeLogic Server Automation, and take corrective action referring to the BMC BladeLogic Server Automation manual.
- Coordination of managed server registration
 - When managed server registration is performed due to automatic registration of Resource Orchestrator agents, server registration with BMC BladeLogic Server Automation is performed automatically.
 - When agents are not registered automatically during server registration, coordination is not performed. By registering agents after registering servers, server registration with BMC BladeLogic Server Automation is performed automatically.
 - The computer name set in the OS (for Windows) or the hostname (for Linux) is used as the server name of servers registered with BMC BladeLogic Server Automation.
 - If Resource Orchestrator processes are completed normally, but BMC BladeLogic Server Automation processes terminate abnormally, they will be displayed as errors in the recent operations area of the ROR console. In such cases, as status is one where

the physical server has been registered with Resource Orchestrator but the agent is still not registered, resolve the cause of the problem and register the agent again.

- Coordination of managed server deletion
 - When performing deletion of managed servers using Resource Orchestrator, the server will automatically be deleted from BMC BladeLogic Server Automation.
 - If Resource Orchestrator processes are completed normally, but BMC BladeLogic Server Automation processes terminate abnormally, they will be displayed as errors in the recent operations area of the ROR console. In such cases, as server deletion from Resource Orchestrator is complete, perform server deletion for BMC BladeLogic Server Automation using the Server Automation console.
- Coordination of cloning and software deployment
 - By preparing software application batch jobs with BMC BladeLogic Server Automation in advance, software deployment settings are performed.
 - After deployment of cloning images using Resource Orchestrator, as well as automatic registration with BMC BladeLogic Server Automation, the batch job registered with BMC BladeLogic Server Automation will be executed.
 - If Resource Orchestrator processes are completed normally, but BMC BladeLogic Server Automation processes terminate abnormally, they will be displayed as errors in the recent operations area of the ROR console. In such cases, as image deployment from Resource Orchestrator is complete, execute the software deployment batch job for BMC BladeLogic Server Automation using the Server Automation console.

Installing BMC BladeLogic Server Automation

Install BMC BladeLogic Server Automation referring to the BMC BladeLogic Server Automation manual. The following are advisory notices regarding coordination with Resource Orchestrator.

- Installation Order

The order of installation of Resource Orchestrator and BMC BladeLogic Server Automation is not important. Therefore, you can install in any order you like.

- Manager Installation

It is possible to install the Resource Orchestrator manager and Application Server (the BMC BladeLogic Server Automation manager) on the same server or on separate servers.

- Required Coordination Components

When the Resource Orchestrator manager and Application Server are installed on separate servers, please install the BMC BladeLogic Server Automation console on the server on which the Resource Orchestrator manager has been installed.

Setup Procedure

Coordination can be performed after processing of Resource Orchestrator, by executing BMC BladeLogic Server Automation functions by using the coordination script. Before using the coordination script, use the following procedure to perform settings for BMC BladeLogic Server Automation and the coordination script.

Common Settings

- Settings for BMC BladeLogic Server Automation

1. Perform settings for managed server name resolution.

On BMC BladeLogic Server Automation, servers are registered by specifying the server names. Therefore, it is necessary to configure DNS or a hosts file in advance so that registered server names can be resolved from Application Server.

Note

When using the Resource Orchestrator cloning function to install a server, the name of the server can be set in "Server name after deployment" of the [Deploy a Cloning Image] dialog.

If the server name set in "Server name after deployment" cannot be resolved from Application Server, the coordination process for BMC BladeLogic Server Automation will fail.

In order to avoid the above problem, in "Server name after deployment" set a server name that can be resolved.

2. Connect to Application Server using the Server Automation console and obtain the certificate. When the certificate has already been obtained, this step is not necessary.

[Windows]

While logged in as the Administrator, connect to the Application Server.

Note

Depending on the language version of Windows, the name of the built-in account for the administrator may not be named "Administrator". In such cases, change the user name of the administrator based on the environment being used.

[Linux]

While logged in to the OS as root, connect to the Application Server.

3. In the property dictionary, create an integer type property named "CLONING_DEPLOY" as a property of the server, setting the default value to "0".
4. Create a server smart group named "CLONING_DEPLOY" in the [Servers] workspace. In the conditions area of the window displayed when creating the smart group, configure the following conditions.
 - Select "Server" from the list, and enter "CLONING_DEPLOY".
 - Select "equals" from the list, and enter "1".

- Settings for Resource Orchestrator

1. Change the extension of the script for coordination.

The script for coordination can be found in the following location:

[Windows Manager]

Installation_folder\SVROR\Manager\etc\scripts

[Linux Manager]

/etc/opt/FJSVrcvmr/scripts

Based on the functions being used, change the extension of the file named "sample" to "bat".

Table A.1 Coordination Scripts

Function	File name (excluding extension)
Server registration	post_register_server
Server deletion	post_delete_server
Cloning image deployment	post_cloning_deploy

2. Settings for connection to Application Server

Edit the file named "blenv.bat" that is in the same folder as the script for coordination, rewriting the values specified for the following variables based on the connection information for Application Server.

Variable	Meaning
PROFILE	The name of the authentication profile used for connection to Application Server
ID	A user name with authority for executing coordination patch jobs

Variable	Meaning
PASSWD	The password for the above user

Note

- As "blenv.bat" contains connection information for Application Server, protect the connection information using the following method.
- Secure the admin server.
- Restrict the authority of the BMC BladeLogic Server Automation account used for coordination so that only the coordination batch job can be executed.

[Windows]

- The following path configured in "blenv.bat" may not exist depending on the language version of Windows being used. In such cases, change the user name of the built-in administrator and the application data storage folder based on the environment being used.

```
set BL_SSO_TRUSTED_CERT_KEYSTORE_FILE="C:\Documents and Settings\Administrator\Application Data\BladeLogic\client_keystore.pkcs12.PEM"
```

Required Settings for Coordination of Cloning and Software Deployment

Perform the following settings for Resource Orchestrator.

Edit the script for coordination "post_cloning_deploy.bat", and specify the batch job created for software deployment using BMC BladeLogic Server Automation.

Re-write the values of the following variables as given below.

Variable	Meaning
JOB_GROUP	Job folder name
JOB_NAME	Batch job name

Advisory Notes

When uninstalling the manager, the coordination scripts will not be saved. Therefore, back them up if necessary.

A.2 Sending SNMP Traps

This section explains the function used to send the details of Resource Orchestrator events to other products as SNMP traps.

Functional Overview

By receiving SNMP traps sent by Resource Orchestrator on other products (operation management products, etc.) it is possible to monitor major Resource Orchestrator events on other products. With this function, in operating environments where monitoring is mainly performed using the consoles of other products, as it is not necessary to constantly display the Resource Orchestrator console, centralization of the monitoring console is possible.

Function Details

- SNMPv1 traps are sent to servers registered as destinations. Destination servers are registered, changed, and deleted using the rcxadm eventctl command.

For details on this command, refer to "5.7 rcxadm eventctl" in the "Reference Guide (Command) VE".

- The SNMP traps sent by Resource Orchestrator contain information about the operation details of Resource Orchestrator. For events related to status changes of resources managed by Resource Orchestrator and events internal to resources, the SNMP traps will be sent by the resource itself.
- The events that are the target of sending as SNMP traps are as follow:
 - FJSVrcx:INFO:21143:*operation*:started
 - FJSVrcx:INFO:21144:*operation*:completed
 - FJSVrcx:INFO:21145:*operation*:cancelled
 - FJSVrcx:ERROR:61143:*operation*:failed
 - FJSVrcx:ERROR:61144:*operation*:rollback failed
- For details of the Resource Orchestrator events that are sent as SNMP traps, check the event log of the ROR console.

Setup Procedure

This section explains the procedure for setting other products to receive Resource Orchestrator SNMP traps. Here it is assumed that installation of other products for receiving SNMP traps has been performed, and that basic settings such as those of the SNMP trap service necessary to receive traps and the required ports, have been made.

1. Configure a SNMP community name for the product that will receive SNMP traps.
Enter a string of up to 32 alphanumeric characters, hyphens ("-"), and underscores ("_") for the SNMP community name.
2. Load the Resource Orchestrator MIB file on the product that is to receive SNMP traps.
The MIB file that defines the SNMP traps for Resource Orchestrator is located in the following folder on the admin server.
 - [Windows Manager]
Installation_folder\SVROR\Manager\etc\mibs\RCVE-Event-Trap-MIB.mib
 - [Linux Manager]
/etc/opt/FJSVrcvnr/mibs/RCVE-Event-Trap-MIB.mib
3. Register destination servers using the rcxadm eventctl add command of Resource Orchestrator.

Modification Procedure

Use the following procedure to change SNMP trap destination settings:

1. Delete the target destination server information using the rcxadm eventctl delete command of Resource Orchestrator.
2. Register the new destination servers using the rcxadm eventctl add command of Resource Orchestrator.

Deletion Procedure

Delete the target destination server information using the rcxadm eventctl delete command of Resource Orchestrator.

Operation Checks

Use the following procedure to confirm that SNMP trap destinations have been registered correctly.

1. From the ROR console, place the desired managed server into maintenance mode.
 - a. In the ROR console server resource tree, right-click the desired server (or its physical OS), and select [Maintenance Mode]-[Set] from the popup menu.
The [Set Maintenance Mode] dialog is displayed.
 - b. Click <OK>.

2. The managed server is released from maintenance mode.
 - a. In the ROR console server resource tree, right-click the desired server (or its physical OS) and select [Maintenance Mode]-[Release] from the popup menu.
The [Release Maintenance Mode] dialog is displayed.
 - b. Click <OK>.

As a result of the above operation, the following four events will be sent as SNMP traps to the registered server. If the destination has been registered correctly, it is possible to check the receipt of the Resource Orchestrator SNMP traps on the destination device. Please note that the display of SNMP traps varies depending on the product.

Event ID	OID
FJSVrcx:INFO:21143: setting maintenance mode:started	1.3.6.1.4.1.211.4.1.3.55.100.1.2.1.21143
FJSVrcx:INFO:21144: setting maintenance mode:completed	1.3.6.1.4.1.211.4.1.3.55.100.1.2.1.21144
FJSVrcx:INFO:21143: releasing maintenance mode:started	1.3.6.1.4.1.211.4.1.3.55.100.1.2.1.21143
FJSVrcx:INFO:21144: releasing maintenance mode:completed	1.3.6.1.4.1.211.4.1.3.55.100.1.2.1.21144

If the receipt of SNMP traps cannot be confirmed, use the `rcxadm eventctl` command to check if the desired destination has been registered correctly. If there are no problems with the registered details, check that there are no problems with the network or the settings for the SNMP trap destination. After resolving any problems, repeat the above procedure and check if the Resource Orchestrator SNMP traps can be received.

A.2.1 SNMP Trap Settings Using CA Spectrum

This section explains the settings for CA Spectrum to receive Resource Orchestrator SNMP traps. Also refer to "A.2 Sending SNMP Traps".

For details on CA Spectrum, refer to the CA Spectrum manual.

External Software

The information in this manual has been based on that of CA Spectrum Infrastructure Manager r9.1.2. Depending on the version of CA Spectrum Infrastructure Manager, some of the terms and procedures may differ slightly from those given here.

Installing CA Spectrum

Perform installation of CA Spectrum referring to the CA Spectrum manual. The following are advisory notices regarding coordination with Resource Orchestrator.

- Installation Order

The order of installation of Resource Orchestrator and CA Spectrum is not important. Therefore, you can install in any order you like.

- Manager Installation

[Windows Manager]

The Resource Orchestrator manager and CA Spectrum's manager, SpectroSERVER cannot be installed on the same server. Install the Resource Orchestrator manager and the CA Spectrum manager on separate servers.

[Linux Manager]

The Resource Orchestrator manager and CA Spectrum's manager, SpectroSERVER can be installed on the same server or on separate servers. However, when they are installed on the same server, it is necessary to perform the settings given in "Preparations".

Preparations

Register the admin server on which the Resource Orchestrator manager has been installed as a management target of CA spectrum.

[Linux Manager]

When installing the Resource Orchestrator manager and SpectroSERVER on the same server, in order to share SNMP traps between Resource Orchestrator and CA Spectrum, ServerView Trap Server for Linux (trpsrvd) is necessary.

ServerView Trap Server for Linux is a program that is used to transfer SNMP traps received at UDP port 162 to other UDP port numbers.

ServerView Trap Server for Linux is shipped with some versions of ServerView Operations Manager. In such cases, install ServerView Trap Server for Linux following the instructions given in the ServerView Operations Manager manual.

If ServerView Trap Server for Linux is not shipped with ServerView Operations Manager, download it from the following site, and install it referring to the attached documents.

URL: http://download.ts.fujitsu.com/prim_supported/SVSSoftware/html/ServerView_e.html

Perform the following settings after installing ServerView Trap Server for Linux.

1. Log in as OS administrator (root).
2. Change the SpectroSERVER SNMP trap reception port to one other than 162.

The port number can be changed by editing the file shown below.

`{SpectroSERVER_installation_folder}/CC/.vnmrc`

Example

.....

When changing the port number to 9162:

```
snmp_trap_port=9162
```

.....

3. Restart SpectroSERVER.
4. Edit the `/usr/share/SMAWtrpsv/conf/trpsrvtargets` file and add the SpectroSERVER SNMP trap reception port.

Before editing

```
#####  
# Copyright (C) Fujitsu Siemens Computers 2007  
# All rights reserved  
# Configuration File for trpsrv (SMAWtrpsv)  
#####  
# Syntax  
# port [(address | -) [comment]]  
  
# examples  
# 8162  
# 9162 - test  
# 162 145.25.124.121
```

After editing (When making the SpectroSERVER SNMP trap reception port 9162)

```
#####  
# Copyright (C) Fujitsu Siemens Computers 2007  
# All rights reserved  
# Configuration File for trpsrv (SMAWtrpsv)  
#####  
  
# Syntax  
# port [(address | -) [comment]]  
  
# examples  
# 8162  
# 9162 - test
```

```
# 162 145.25.124.121
```

```
#Transfer to UDP port 9162.  
9162
```

5. Restart the system.

Setup Procedure

In this section, the procedures for checking SNMP traps that CA Spectrum receives from Resource Orchestrator, as event messages on OneClick (CA Spectrum's console) are explained.

Refer to the CA Spectrum manual for details on each procedure.

1. Start CA Spectrum's MIB Tools.
2. Click <Add MIB> on the "Navigation" panel.
The [MIB Tools: Add MIB] dialog is displayed.
3. Click <Browse> and select the Resource Orchestrator MIB file.
4. Click <Compile>.

Confirm that compiling of the MIB file was successful in the messages displayed in "Compiler" of the [MIB Tools: Add MIB] dialog.

5. Click <Add & Close>.

The loaded MIB is displayed in the MIB Tools "Navigation" panel.

6. On "Navigation" panel, select the Resource Orchestrator MIB, and click the [Map] tab on the "Contents" panel.
7. Select the trap displayed in "Trap Support", and click <Information> to check the trap details.
8. Select the trap displayed in "Trap Support", and click <Map Traps>.

The [MIB Tools: Assign Trap Alarms] dialog is displayed.

9. Click <set> in "Alarm Severity", and select the severity of alarms for each trap.

10. Click <OK>.

The [MIB Tools: Trap Support Results] dialog will be displayed, and you can check the results of the operation.

11. Click <Close>.

Check that event codes have been allocated for each trap in the MIB Tools "Trap Support".

12. Select a trap from "Trap Support", and click <Edit Traps>.

The Event Configuration application will start.

13. On the "Navigation" panel, select the event code allocated to the trap.

14. In "Event Message" of the "Contents" panel, the event message to be displayed when the trap is received is displayed.

The message can be edited following the format specified by CA Spectrum.

For details of the format, refer to the CA Spectrum manual.

15. After changing a message, select [Save All] or [Save Selected] from the Event Configuration application menu and save the settings.

After performing the above settings, perform the operation check described in ["A.2 Sending SNMP Traps"](#).

Appendix B Co-Existence with ServerView Deployment Manager

This appendix explains how to use both Resource Orchestrator and ServerView Deployment Manager on the same network.

B.1 Overview

Resource Orchestrator and ServerView Deployment Manager can be installed either on the same server or on two different servers. In both cases, they can share the same subnet (admin LAN) to control managed servers. In a shared subnet configuration, ServerView Deployment Manager should be used instead of Resource Orchestrator for all image operations such as server cloning, backup and restore.

Figure B.1 System Configuration Example (Separate Server Installation)

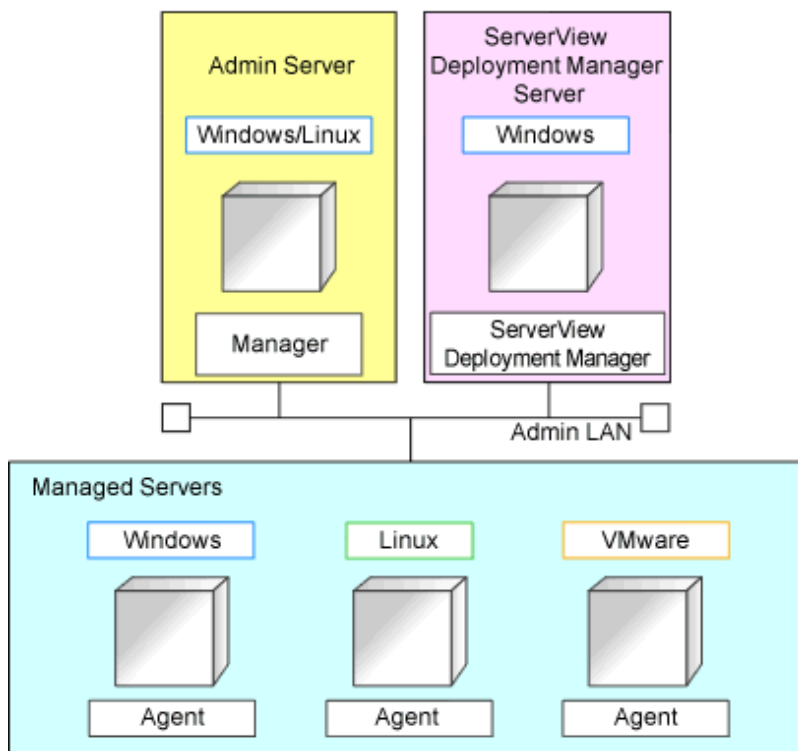
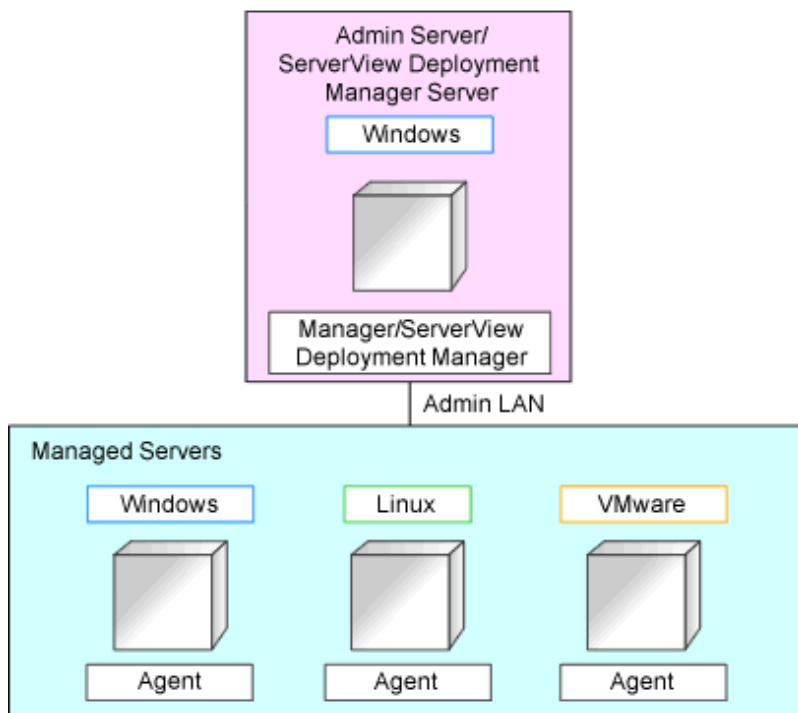


Figure B.2 System Configuration Example (Single Server Installation)



B.2 Restricted Functions

In shared subnet configurations, the following functions are no longer available from Resource Orchestrator.

- Backup and Restore
- cloning
- I/O virtualization (HBA address rename)
- Server switchover (based on the backup-restore and HBA address rename methods)

In Resource Orchestrator, the switchover of VIOM method can be used.

However, users are recommended to use the following ServerView products.

- ServerView Deployment Manager (for cloning, backup and restore)
- ServerView Virtual-IO Manager (for I/O virtualization)

Appendix C Advisory Notes for Environments with Systemwalker Centric Manager or ETERNUS SF Storage Cruiser

This appendix explains advisory notes for use of Resource Orchestrator in combination with Systemwalker Centric Manager or ETERNUS SF Storage Cruiser.

Installation [Linux Manager]

When using the following products on servers that a manager has been installed on, in order to share SNMP Traps between servers ServerView Trap Server for Linux (trpsrvd) is necessary.

- Systemwalker Centric Manager (Operation management servers and section admin servers)
- ETERNUS SF Storage Cruiser Manager 14.1 or earlier

ServerView Trap Server for Linux (trpsrvd) is used to transfer snmp traps received at UDP port number 162 to other UDP port numbers. The ServerView Trap Server for Linux is included in some versions of ServerView Operations Manager. In this case, install ServerView Trap Server for Linux referring to the ServerView Operations Manager manual.

If ServerView Trap Server for Linux is not included with ServerView Operations Manager, download it from the following web site, and install it referring to the documents provided with it.

URL: http://download.ts.fujitsu.com/prim_supportcd/SVSSoftware/html/ServerView_e.html

Perform the following settings after installing ServerView Trap Server for Linux.

1. Log in as OS administrator (root).
2. Edit the /etc/services file, and add the following line.

```
mpwksttr-trap    49162/udp
```

3. Edit the /usr/share/SMAWtrpsv/conf/trpsrvtargets file, and add port 49162.

Before editing

```
#####  
# Copyright (C) Fujitsu Siemens Computers 2007  
# All rights reserved  
# Configuration File for trpsrv (SMAWtrpsv)  
#####  
  
# Syntax  
# port [(address | -) [comment]]  
  
# examples  
# 8162  
# 9162 - test  
# 162 145.25.124.121
```

After editing

```
#####  
# Copyright (C) Fujitsu Siemens Computers 2007  
# All rights reserved  
# Configuration File for trpsrv (SMAWtrpsv)  
#####
```

```
# Syntax
# port [(address | -) [comment]]

# examples
# 8162
# 9162 - test
# 162 145.25.124.121

#Transfer to UDP port 49162.
49162
```

4. Restart the system.

Upgrading from Earlier Versions

- When upgrading managers of V2.1.3 or earlier versions

[Windows Manager]

The SNMP trap service (SystemWalker MpWksttr service) installed by the manager of V2.1.3 or earlier versions will be deleted by upgrading Resource Orchestrator.

As the SystemWalker MpWksttr service is shared in environments where the following software exists, if the SystemWalker MpWksttr service is deleted when upgrading to Resource Orchestrator, perform installation and setup operation of the SystemWalker MpWksttr service referring to the manual of the following software.

- Systemwalker Centric Manager (Operation management servers and department admin servers)
- ETERNUS SF Storage Cruiser Manager 14.1 or earlier

[Linux Manager]

The SNMP trap service (SystemWalker MpWksttr service) installed by the manager of V2.1.3 or earlier versions will be deleted by upgrading Resource Orchestrator.

As the SystemWalker MpWksttr service is shared in environments where the following software exists, if the SystemWalker MpWksttr service is deleted when upgrading to Resource Orchestrator, perform installation and setup operation of the SystemWalker MpWksttr service referring to the manual of the following software.

- Systemwalker Centric Manager (Operation management servers and department admin servers)

In environments where the above software has not been installed but the following software has, when upgrading managers of V2.1.3 or earlier versions, the SystemWalker MpWksttr service will remain even after upgrading, but the SystemWalker MpWksttr service is not required.

- ETERNUS SF Storage Cruiser Manager 14.1 or later

In this case, execute the following command as the OS administrator (root) and delete the SystemWalker MpWksttr service.

```
# rpm -e FJSVswstt <RETURN>
```

Appendix D Manager Cluster Operation Settings and Deletion

This appendix explains the settings necessary for operating Resource Orchestrator in cluster systems and the procedures for deleting this product from cluster systems.



When coordination with VIOM is being used, or when Single Sign-On is configured, clustered manager operation is not supported. When coordination with ESC is being used, clustered operation of Windows managers is not supported.

D.1 What are Cluster Systems

In cluster systems, two or more servers are operated as a single virtual server in order to enable high availability.

If a system is run with only one server, and the server or an application operating on it fails, all operations would stop until the server is rebooted.

In a cluster system where two or more servers are linked together, if one of the servers becomes unusable due to trouble with the server or an application being run, by restarting the applications on the other server it is possible to resume operations, shortening the length of time operations are stopped.

Switching from a failed server to another, operational server in this kind of situation is called failover.

In cluster systems, groups of two or more servers are called clusters, and the servers comprising a cluster are called nodes.

Clusters are classified into the following types:

- Standby clusters

This type of cluster involves standby nodes that stand ready to take over from operating nodes. The mode can be one of the following modes:

- 1:1 hot standby

A cluster consisting of one operating node and one standby node. The operating node is operational and the standby node stands ready to take over if needed.

- $n:1$ hot standby

A cluster consisting of n operating nodes and one standby node. The n operating nodes run different operations and the standby node stands ready to take over from all of the operating nodes.

- $n:i$ hot standby

A cluster consisting of n operating nodes and i standby nodes. The style is similar to $n:1$ hot standby, only there are i standby nodes standing ready to take over from all of the operating nodes.

- Mutual standby

A cluster consisting of two nodes with both operating and standby applications. The two nodes each run different operations and stand ready to take over from each other. If one node fails, the other node runs both of the operations.

- Cascade

A cluster consisting of three or more nodes. One of the nodes is the operating node and the others are the standby nodes.

- Scalable clusters

This is a cluster that allows multiple server machines to operate concurrently for performance improvement and reduced degrading during trouble. It differs from standby clusters as the nodes are not divided into operating and standby types. If the system fails on one of the nodes in the cluster, the other servers take over the operations.

Resource Orchestrator managers support failover clustering of Microsoft(R) Windows Server(R) 2008 Enterprise (x86, x64) and 1:1 hot standby of PRIMECLUSTER.

When operating managers in cluster systems, the HBA address rename setup service can be started on the standby node. Using this function enables starting of managed servers without preparing a dedicated server for the HBA address rename setup service, even when managers and managed servers cannot communicate due to problems with the manager or the failure of the NIC used for connection to the admin LAN.

Information

For details of failover clustering, refer to the Microsoft web site.

For PRIMECLUSTER, refer to the PRIMECLUSTER manual.

D.2 Installation

This section explains installation of managers on cluster systems.

Perform installation only after configuration of the cluster system.

Note

In order to distinguish between the two physical nodes, one is referred to as the primary node and the other the secondary node. The primary node is the node that is active when the cluster service (cluster application) is started. The secondary node is the node that is in standby when the cluster service (cluster application) is started.

D.2.1 Preparations

This section explains the resources necessary before installation.

[Windows Manager]

- Client Access Point

An access point is necessary in order to enable communication between the ROR console, managed servers, and managers. The IP addresses and network names used for access are allocated.

- When the same access point will be used for access by the ROR console and the admin LAN

Prepare a single IP address and network name.

- When different access points will be used for access by the ROR console and the admin LAN

Prepare a pair of IP addresses and network names.

- Shared Disk for Managers

Prepare at least one storage volume (LUN) to store data shared by the managers.

For the necessary disk space for the shared disk, total the values for *Installation_folder* and *Image_file_storage_folder* indicated for managers in "Table 2.49 Dynamic Disk Space" in "2.4.2.5 Dynamic Disk Space" of the "Design Guide VE", and secure the necessary amount of disk space.

- Generic Scripts for Manager Services

Create the generic script files for (starting and stopping) the following manager services:

- Resource Coordinator Web Server(Apache)
- Resource Coordinator Sub Web Server(Mongrel)
- Resource Coordinator Sub Web Server(Mongrel2)

Create a script file with the following content for each of the services.

The name of the file is optional, but the file extension must be ".vbs".

```

Function Online()

    Dim objWmiProvider
    Dim objService
    Dim strServiceState

    ' Check to see if the service is running
    set objWmiProvider = GetObject("winmgmts:/root/cimv2")
    set objService = objWmiProvider.get("win32_service='Service_name'")
    strServiceState = objService.state

    If ucase(strServiceState) = "RUNNING" Then
        Online = True
    Else

        ' If the service is not running, try to start it.
        response = objService.StartService()

        ' response = 0 or 10 indicates that the request to start was accepted
        If ( response <> 0 ) and ( response <> 10 ) Then
            Online = False
        Else
            Online = True
        End If
    End If
End Function

Function Offline()

    Dim objWmiProvider
    Dim objService
    Dim strServiceState

    ' Check to see if the service is running
    set objWmiProvider = GetObject("winmgmts:/root/cimv2")
    set objService = objWmiProvider.get("win32_service='Service_name'")
    strServiceState = objService.state

    If ucase(strServiceState) = "RUNNING" Then

        response = objService.StopService()

        If ( response <> 0 ) and ( response <> 10 ) Then
            Offline = False
        Else
            Offline = True
        End If
    Else
        Offline = True
    End If
End Function

Function LooksAlive()

    Dim objWmiProvider
    Dim objService
    Dim strServiceState

    set objWmiProvider = GetObject("winmgmts:/root/cimv2")
    set objService = objWmiProvider.get("win32_service='Service_name'")
    strServiceState = objService.state

    if ucase(strServiceState) = "RUNNING" Then

```

```

        LooksAlive = True
    Else
        LooksAlive = False
    End If
End Function

Function IsAlive()

    Dim objWmiProvider
    Dim objService
    Dim strServiceState

    set objWmiProvider = GetObject("winmgmts:/root/cimv2")
    set objService = objWmiProvider.get("win32_service='Service_name'")
    strServiceState = objService.state

    if ucase(strServiceState) = "RUNNING" Then
        IsAlive= True
    Else
        IsAlive = False
    End If

End Function

```

Specify the following service names for four occurrences of "*service_name*" in the script.

- ResourceCoordinatorWebServer(Apache)
- Resource Coordinator Sub Web Server(Mongrel)
- Resource Coordinator Sub Web Server(Mongrel2)

[Linux Manager]

- Takeover Logical IP Address for the Manager

When operating managers in cluster systems, allocate a new, unique IP address on the network to PRIMECLUSTER GLS.

If the IP address used for access from the ROR console differs from the above IP address, prepare another logical IP address and allocate it to PRIMECLUSTER GLS.

When using an IP address that is already being used for an existing operation (cluster application), there is no need to allocate a new IP address for the manager.

- Shared Disk for Managers

Prepare a PRIMECLUSTER GDS volume to store shared data for managers.

For the necessary disk space for the shared disk, total the values indicated for "[Linux Manager]" in "Table 2.49 Dynamic Disk Space" in "2.4.2.5 Dynamic Disk Space" in the "Design Guide VE", and secure the necessary amount of disk space.

D.2.2 Installation

This section explains installation of managers on cluster systems.

Install managers on both the primary and secondary nodes.

Install managers referring to "[2.1 Manager Installation](#)".



Note

- Do not install on the shared disk for managers.

[Windows Manager]

- On the [Select Installation Folder] window, specify the same folder names on the primary node and secondary node for the installation folders and the image file storage folders.
However, do not specify a folder on the shared disk for managers.

- On the [Administrative User Creation] window, specify the same character strings for the user account names and passwords on the primary node and the secondary node.
- On the [Admin LAN Selection] window of the installer, select the network with the same subnet for direct communication with managed servers.

[Linux Manager]

- Specify the same directory names for both the primary node and the secondary node when entering the image file storage directory during installation.
However, do not specify a directory on the shared disk for managers.
- Specify the same character strings for the primary node and the secondary node when entering administrative user account names and passwords during installation.
- Select a network of the same subnet from which direct communication with managed servers is possible when selecting the admin LAN network interface during installation.



After installation, stop the manager.

Stop the manager using the `rcxadm mgrctl stop` command.

For details of the command, refer to "5.11 rcxadm mgrctl" in the "Reference Guide (Command) VE".

[Windows Manager]

Change the startup type of the following manager services to "Manual".

- Resource Coordinator Task Manager
- Resource Coordinator Web Server(Apache)
- Resource Coordinator Sub Web Server(Mongrel)
- Resource Coordinator Sub Web Server(Mongrel2)
- Deployment Service (*1)
- TFTP Service (*1)
- PXE Services (*1)
- Resource Coordinator DB Server (PostgreSQL)

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

D.3 Set

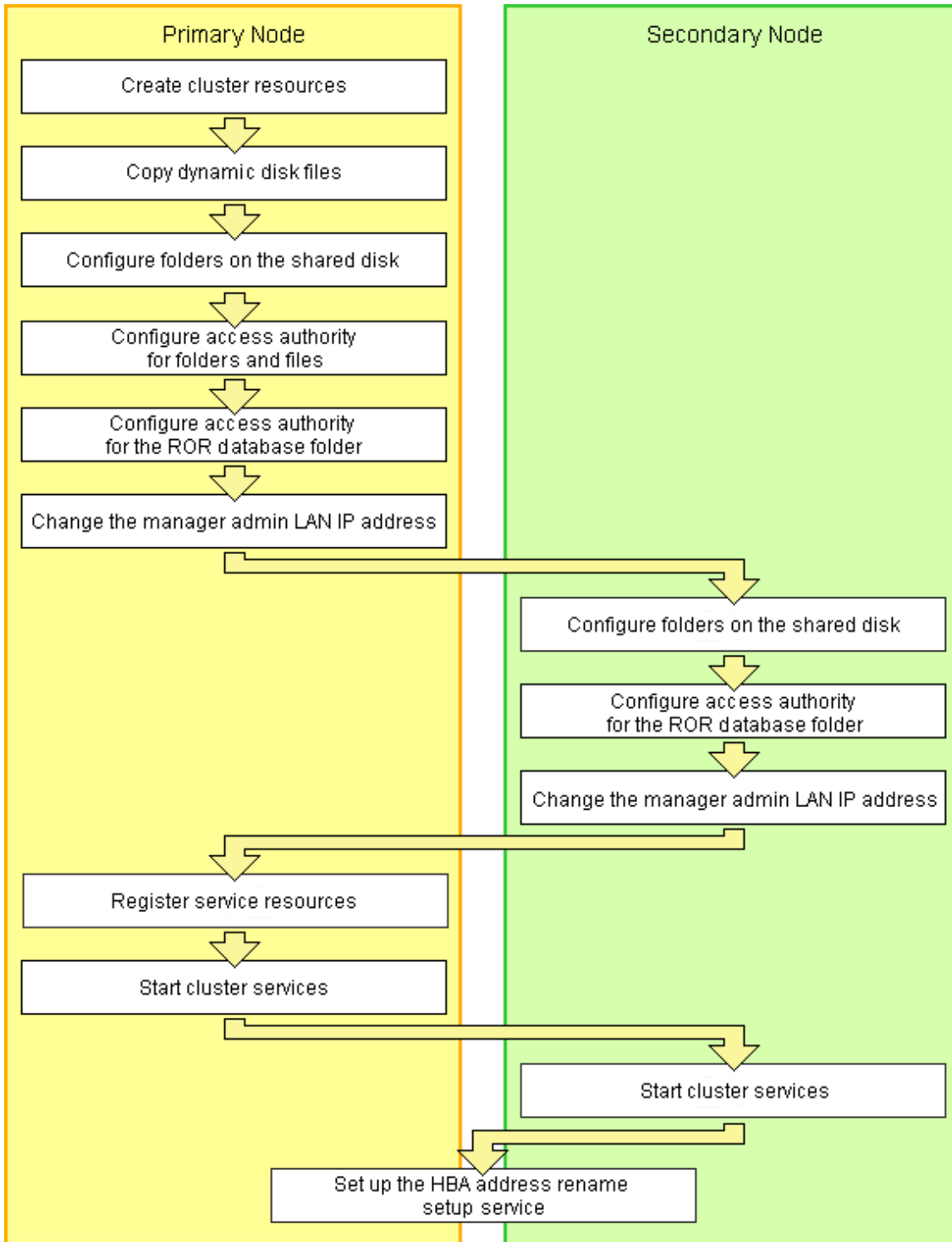
This section explains the procedure for setting up managers as cluster services (cluster applications) in cluster systems.

D.3.1 Configuration [Windows Manager]

Perform setup on the admin server.

The flow of setup is as shown below.

Figure D.1 Manager Service Setup Flow



Setup of managers as cluster services (cluster applications) is performed using the following procedure. This explanation assumes that the shared disk for managers has been allocated to the primary node.

Create cluster resources

1. Store the generic scripts.

Store the generic scripts created in "D.2.1 Preparations" in the manager installation folders on the primary node and the second node. After storing the scripts, set the access rights for the script files.

Use the command prompt to execute the following command on each script file.

```
>cacls File_name /P "NT AUTHORITY\SYSTEM:F" "BUILTIN\Administrators:F" <RETURN>
```

Note

When using the following language versions of Windows, replace the specified local system name (NT AUTHORITY\SYSTEM) and administrator group name (BUILTIN\Administrators) with those in the following list:

Language	Local system name	Administrator group name
German	NT-AUTORITÄT\SYSTEM	VORDEFINIERT\Administratoren
French	AUTORITE NT\SYSTEM	BUILTIN\Administrateurs
Spanish	NT AUTHORITY\SYSTEM	BUILTIN\Administradores
Russian	NT AUTHORITY\SYSTEM	BUILTIN\Администраторы

2. Open the [Failover Cluster Management] window and connect to the cluster system.
3. Configure a manager "service or application".
 - a. Right-click [Services and Applications] on the Failover Cluster Management tree, and select [More Actions]-[Create Empty Service or Application].
[New service or application] will be created under [Services and Applications].
 - b. Right-click [New service or application], and select [Properties] from the displayed menu.
The [New service or application properties] dialog is displayed.
 - c. Change the "Name" on the [General] tab, select the resource name of the primary node from "Preferred owners:", and click <Apply>.
 - d. Once settings are applied, click <OK>.

From this point, the explanation assumes that the name of the "service or application" for Resource Orchestrator has been configured as "RC-manager".

4. Allocate the shared disk to the manager "service or application".
 - a. Right-click [Services and Applications]-[RC-manager], and select [Add storage] from the displayed menu.
The [Add Storage] window will be displayed.
 - b. From the "Available disks:", select the shared disk for managers and click <OK>.
5. Allocate the client access point to the manager "service or application".
 - a. Right-click [Services and Applications]-[RC-manager], select [Add a resource]-[1 - Client Access Point] from the displayed menu.
The [New Resource Wizard] window will be displayed.
 - b. Configure the following parameters on the [General] tab and then click <Next>:

Name

Set the network name prepared in "D.2.1 Preparations".

Networks

Check the network to use.

Address

Set the IP address prepared in "D.2.1 Preparations".

"Confirmation" will be displayed.

- c. Check the information displayed for "Confirmation" and click <Next>.

If configuration is successful, the "Summary" will be displayed.

- d. Click <Finish>.

"Name: *Network_Name*" and "IP Address:*IP_Address*" will be created in the "Server Name" of the "Summary of RC-manager" displayed in the center of the window.

The specified value in step b. is displayed for *Network_Name* and *IP_Address*.

When a network other than the admin LAN has been prepared for ROR console access, perform the process in step 6.

6. Allocate the IP address to the manager "service or application".

- a. Right-click [Services and Applications]-[RC-manager], select [Add a resource]-[More resources]-[4 - Add IP Address] from the displayed menu.

"IP Address: <not configured>" will be created in the "Other Resources" of the "Summary of RC-manager" displayed in the center of the window.

- b. Right-click "IP Address: <not configured>", and select [Properties] from the displayed menu.

The [IP Address: <not configured> Properties] window is displayed.

- c. Configure the following parameters on the [General] tab and then click <Apply>.

Resource Name

Set the network name prepared in "D.2.1 Preparations".

Network

Select the network to use from the pull-down menu.

Static IP Address

Set the IP address prepared in "D.2.1 Preparations".

- d. Once settings are applied, click <OK>.

Copy dynamic disk files

Copy the files from the dynamic disk of the manager on the primary node to the shared disk for managers.

1. Use Explorer to create the "*Drive_name*:\Fujitsu\ROR\SVROR\" folder on the shared disk.
2. Use Explorer to copy the files and folders from the local disk of the primary node to the folder on the shared disk.

Table D.1 List of Files and Folders to Copy

Local Disk (Source)	Shared Disk (Target)
<i>Installation_folder</i> \SVROR\Manager\etc\customize_data	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\customize_data
<i>Installation_folder</i> \SVROR\Manager\etc\opt\FJSVssmgr\current\certificate	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\certificate
<i>Installation_folder</i> \SVROR\Manager\Rails\config\rcx_secret.key	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\rcx_secret.key
<i>Installation_folder</i> \SVROR\Manager\Rails\config\rcx\rcxdb.pwd	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\rcxdb.pwd
<i>Installation_folder</i> \SVROR\Manager\Rails\db	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\db
<i>Installation_folder</i> \SVROR\Manager\Rails\log	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\log

Local Disk (Source)	Shared Disk (Target)
<i>Installation_folder</i> \SVROR\Manager\Rails\tmp	<i>Drive_name</i> :Fujitsu\ROR\SVROR\tmp
<i>Installation_folder</i> \SVROR\Manager\sys\apache\conf	<i>Drive_name</i> :Fujitsu\ROR\SVROR\conf
<i>Installation_folder</i> \SVROR\Manager\sys\apache\logs	<i>Drive_name</i> :Fujitsu\ROR\SVROR\logs
<i>Installation_folder</i> \SVROR\Manager\var	<i>Drive_name</i> :Fujitsu\ROR\SVROR\var
<i>Installation_folder</i> \SVROR\ScwPro\Bin\ipTable.dat (*1)	<i>Drive_name</i> :Fujitsu\ROR\SVROR\ipTable.dat
<i>Installation_folder</i> \SVROR\ScwPro\scwdb (*1)	<i>Drive_name</i> :Fujitsu\ROR\SVROR\scwdb
<i>Installation_folder</i> \SVROR\ScwPro\tftp\rcbootimg (*1)	<i>Drive_name</i> :Fujitsu\ROR\SVROR\rcbootimg
<i>User_specified_folder</i> \ScwPro\depot (*1)	<i>Drive_name</i> :Fujitsu\ROR\SVROR\depot

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

3. Release the sharing settings of the following folder:

Not necessary when ServerView Deployment Manager is used in the same subnet.

- *Installation_folder*\SVROR\ScwPro\scwdb

Execute the following command using the command prompt:

```
>net share ScwDB$ /DELETE <RETURN>
```

4. Use Explorer to change the names of the folders below that were copied.

- *Installation_folder*\SVROR\Manager\etc\customize_data
- *Installation_folder*\SVROR\Manager\etc\opt\FJSVssmgr\current\certificate
- *Installation_folder*\SVROR\Manager\Rails\config\rcx_secret.key
- *Installation_folder*\SVROR\Manager\Rails\config\rcx\rcxdb.pwd
- *Installation_folder*\SVROR\Manager\Rails\db
- *Installation_folder*\SVROR\Manager\Rails\log
- *Installation_folder*\SVROR\Manager\Rails\tmp
- *Installation_folder*\SVROR\Manager\sys\apache\conf
- *Installation_folder*\SVROR\Manager\sys\apache\logs
- *Installation_folder*\SVROR\Manager\var
- *Installation_folder*\SVROR\ScwPro\Bin\ipTable.dat (*1)
- *Installation_folder*\SVROR\ScwPro\scwdb (*1)
- *Installation_folder*\SVROR\ScwPro\tftp\rcbootimg (*1)

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.



Note

When folders or files are in use by another program, attempts to change folder names and file names may fail. If attempts to change names fail, change the names after rebooting the server.

5. Delete the following file from the shared disk:

- *Drive_name*:Fujitsu\ROR\SVROR\db\rmc_key

Configure Folders on the Shared Disk (Primary node)

1. On the primary node, configure symbolic links to the files and folders on the shared disk.

Use the command prompt to configure a symbolic link from the files and folders on the local disk of the primary node to the files and folders on the shared disk.

Execute the following command.

- Folder

```
>mklink /d Link_source Link_target <RETURN>
```

- File

```
>mklink Link_source Link_target <RETURN>
```

Specify the folders or files copied in "Copy Dynamic Disk Files" for *Link_source*.

Specify the folders or files copied to the shared disk in "Copy Dynamic Disk Files" for *Link_target*.

The folders and files to specify are as given below:

Table D.2 Folders to Specify

Local Disk (Link Source)	Shared Disk (Link Target)
<i>Installation_folder</i> \SVROR\Manager\etc\customize_data	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\customize_data
<i>Installation_folder</i> \SVROR\Manager\etc\opt\FJSVsmgr\current\certificate	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\certificate
<i>Installation_folder</i> \SVROR\Manager\Rails\db	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\db
<i>Installation_folder</i> \SVROR\Manager\Rails\log	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\log
<i>Installation_folder</i> \SVROR\Manager\Rails\tmp	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\tmp
<i>Installation_folder</i> \SVROR\Manager\sys\apache\conf	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\conf
<i>Installation_folder</i> \SVROR\Manager\sys\apache\logs	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\logs
<i>Installation_folder</i> \SVROR\Manager\var	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\var
<i>Installation_folder</i> \SVROR\ScwPro\scwdb (*1)	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\scwdb
<i>Installation_folder</i> \SVROR\ScwPro\tftp\rcbootimg (*1)	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\rcbootimg

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

Table D.3 Files to Specify

Local Disk (Link Source)	Shared Disk (Link Target)
<i>Installation_folder</i> \SVROR\Manager\Rails\config\rcx_secret.key	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\rcx_secret.key
<i>Installation_folder</i> \SVROR\Manager\Rails\config\rcx\rcxdb.pwd	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\rcxdb.pwd
<i>Installation_folder</i> \SVROR\ScwPro\Bin\ipTable.dat (*1)	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\ipTable.dat

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

Note

Before executing the above command, move to a folder one level higher than the link source folder.

Example

When specifying a link from "*Installation_folder*\SVROR\Manager\sys\apache\logs" on the local disk to "*Drive_name*:\Fujitsu\ROR\SVROR\logs" on the shared disk

```
>cd Installation_folder\SVROR\Manager\sys\apache <RETURN>
>mklink /d logs Drive_name:\Fujitsu\ROR\SVROR\logs <RETURN>
```

2. Change the registry of the primary node.

Not necessary when ServerView Deployment Manager is used in the same subnet.

a. Backup the registry to be changed.

Execute the following command.

- x64

```
>reg save HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard
scw.reg <RETURN>
```

- x86

```
>reg save HKEY_LOCAL_MACHINE\SOFTWARE\Fujitsu\SystemcastWizard scw.reg
<RETURN>
```

b. Change the registry.

Execute the following command.

- x64

```
>reg add HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard
\ResourceDepot /v BasePath /d Drive_name:\Fujitsu\ROR\SVROR\depot /f <RETURN>

>reg add HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard
\DatabaseBroker\Default /v LocalPath /d Drive_name:\Fujitsu\ROR\SVROR\scwdb /f <RETURN>

>reg add HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard
\DHCP /v IPtableFilePath /d Drive_name:\Fujitsu\ROR\SVROR /f <RETURN>
```

- x86

```
>reg add HKEY_LOCAL_MACHINE\SOFTWARE\Fujitsu\SystemcastWizard\ResourceDepot /v
BasePath /d Drive_name:\Fujitsu\ROR\SVROR\depot /f <RETURN>

>reg add HKEY_LOCAL_MACHINE\SOFTWARE\Fujitsu\SystemcastWizard\DatabaseBroker
\Default /v LocalPath /d Drive_name:\Fujitsu\ROR\SVROR\scwdb /f <RETURN>

>reg add HKEY_LOCAL_MACHINE\SOFTWARE\Fujitsu\SystemcastWizard\DHCP /v
IPtableFilePath /d Drive_name:\Fujitsu\ROR\SVROR /f <RETURN>
```

Change *Drive_name* based on your actual environment.

c. If changing the registry fails, restore the registry.

Execute the following command.

- x64

```
>reg restore HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Fujitsu
\SystemcastWizard scw.reg <RETURN>
```

- x86

```
>reg restore HKEY_LOCAL_MACHINE\SOFTWARE\Fujitsu\SystemcastWizard scw.reg
<RETURN>
```

Note

Do not use the backup registry file created using this procedure for any other purposes.

Configure Access Authority for Folders and Files

- Set the access authority for the folders and files copied to the shared disk.

Use the command prompt to set the access authority for the folders and files on the shared disk.

The folders and files to specify are as given below:

- Folder

Drive_name:\Fujitsu\ROR\SVROR\certificate

Drive_name:\Fujitsu\ROR\SVROR\conf\ssl.key

Drive_name:\Fujitsu\ROR\SVROR\var\log

- Files

Drive_name:\Fujitsu\ROR\SVROR\rcx_secret.key

Execute the following command.

- Folder

```
>cacls Folder_name /T /P "NT AUTHORITY\SYSTEM:F" "BUILTIN\Administrators:F" <RETURN>
```

- File

```
>cacls File_name /P "NT AUTHORITY\SYSTEM:F" "BUILTIN\Administrators:F" <RETURN>
```

Note

When using the following language versions of Windows, replace the specified local system name (NT AUTHORITY\SYSTEM) and administrator group name (BUILTIN\Administrators) with those in the following list:

Language	Local system name	Administrator group name
German	NT-AUTORITÄT\SYSTEM	VORDEFINIERT\Administratoren
French	AUTORITE NT\SYSTEM	BUILTIN\Administrateurs
Spanish	NT AUTHORITY\SYSTEM	BUILTIN\Administradores
Russian	NT AUTHORITY\SYSTEM	BUILTIN\Администраторы

Configure Access Authority for the Resource Orchestrator Database Folder (Primary node)

Set the access authority for the folder for the Resource Orchestrator database copied to the shared disk.

Execute the following command using the command prompt of the primary node:

```
>cacls Drive_name:\Fujitsu\ROR\SVROR\db\data /T /P "NT AUTHORITY\SYSTEM:F" "BUILTIN\Administrators:F"
"rcxdb:C" <RETURN>
```

Change the Manager Admin LAN IP Address (Primary node)

Change the admin LAN IP address of the manager.

Specify the admin LAN IP address set in step 5. of "Create Cluster Resources".

1. Bring the admin LAN IP address for the manager "service or application" online.
2. Execute the following command using the command prompt of the primary node:

```
>Installation_folder\SVROR\Manager\bin\rxadm mgrctl modify -ip IP_address <RETURN>
```

3. Allocate the shared disk to the secondary node.

Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Move this service or application to another node]-[1 - Move to node *node_name*] from the displayed menu.

The name of the secondary node is displayed for *node_name*.

Configure Folders on the Shared Disk (Secondary node)

- On the secondary node, configure symbolic links to the folders on the shared disk.

- a. Use Explorer to change the names of the folders and files below.

- *Installation_folder*\SVROR\Manager\etc\customize_data
- *Installation_folder*\SVROR\Manager\etc\opt\FJSVssmgr\current\certificate
- *Installation_folder*\SVROR\Manager\Rails\config\rx_secret.key
- *Installation_folder*\SVROR\Manager\Rails\config\rx\rxdb.pwd
- *Installation_folder*\SVROR\Manager\Rails\db
- *Installation_folder*\SVROR\Manager\Rails\log
- *Installation_folder*\SVROR\Manager\Rails\tmp
- *Installation_folder*\SVROR\Manager\sys\apache\conf
- *Installation_folder*\SVROR\Manager\sys\apache\logs
- *Installation_folder*\SVROR\Manager\var
- *Installation_folder*\SVROR\ScwPro\Bin\ipTable.dat (*1)
- *Installation_folder*\SVROR\ScwPro\scwdb (*1)
- *Installation_folder*\SVROR\ScwPro\tftp\rcbootimg (*1)

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

Note

When folders or files are in use by another program, attempts to change folder names and file names may fail. If attempts to change names fail, change the names after rebooting the server.

- b. Release the sharing settings of the following folder:

Not necessary when ServerView Deployment Manager is used in the same subnet.

- *Installation_folder*\SVROR\ScwPro\scwdb

Execute the following command using the command prompt:

```
>net share ScwDB$ /DELETE <RETURN>
```


- c. Use the command prompt to configure a symbolic link from the folder on the local disk of the secondary node to the folder on the shared disk.

Execute the following command.

- Folder

```
>mklink /d Link_source Link_target <RETURN>
```

- File

```
>mklink Link_source Link_target <RETURN>
```

Specify a file or folder on the local disk of the secondary node for *Link_source*.

Specify a file or folder on the shared disk of the secondary node for *Link_target*.

The folders to specify are as given below:

Table D.4 Folders to Specify

Local Disk (Link Source)	Shared Disk (Link Target)
<i>Installation_folder</i> \SVROR\Manager\etc\customize_data	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\customize_data
<i>Installation_folder</i> \SVROR\Manager\etc\opt\FJSVssmgr\current\certificate	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\certificate
<i>Installation_folder</i> \SVROR\Manager\Rails\db	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\db
<i>Installation_folder</i> \SVROR\Manager\Rails\log	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\log
<i>Installation_folder</i> \SVROR\Manager\Rails\tmp	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\tmp
<i>Installation_folder</i> \SVROR\Manager\sys\apache\conf	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\conf
<i>Installation_folder</i> \SVROR\Manager\sys\apache\logs	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\logs
<i>Installation_folder</i> \SVROR\Manager\var	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\var
<i>Installation_folder</i> \SVROR\ScwPro\scwdb (*1)	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\scwdb
<i>Installation_folder</i> \SVROR\ScwPro\ftpt\rcbootimg (*1)	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\rcbootimg

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

Table D.5 Files to Specify

Local Disk (Link Source)	Shared Disk (Link Target)
<i>Installation_folder</i> \SVROR\Manager\Rails\config\rx_secret.key	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\rx_secret.key
<i>Installation_folder</i> \SVROR\Manager\Rails\config\rx\rxdb.pwd	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\rxdb.pwd
<i>Installation_folder</i> \SVROR\ScwPro\Bin\ipTable.dat (*1)	<i>Drive_name</i> :\Fujitsu\ROR\SVROR\ipTable.dat

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

Note

Before executing the above command, move to a folder one level higher than the link source folder.

Example

When specifying a link from "*Installation_folder*\SVROR\Manager\sys\apache\logs" on the local disk to "*Drive_name*: \Fujitsu\ROR\SVROR\logs" on the shared disk

```
>cd Installation_folder\SVROR\Manager\sys\apache <RETURN>
>mklink /d logs Drive_name:\Fujitsu\ROR\SVROR\logs <RETURN>
```

Configure Access Authority for the Resource Orchestrator Database Folder (Secondary node)

Set the access authority for the folder for the Resource Orchestrator database copied to the shared disk.

Execute the following command using the command prompt of the secondary node:

```
>cacls Drive_name:\Fujitsu\ROR\SVROR\db\data /T /G "rcxdb:C" /E <RETURN>
```

Change the Manager Admin LAN IP Address (Secondary node)

Change the admin LAN IP address of the manager.

Specify the admin LAN IP address set in step 5. of "Create Cluster Resources".

1. Execute the following command using the command prompt of the secondary node:

```
>Installation_folder\SVROR\Manager\bin\rcxadm mgrctl modify -ip IP_address <RETURN>
```

2. Allocate the shared disk to the primary node.

Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Move this service or application to another node]-[1 - Move to node *node_name*] from the displayed menu.

The name of the primary node is displayed for *node_name*.

Register service resources

1. Add the manager service to the manager "service or application".

Add the following six services.

- Resource Coordinator Manager
- Resource Coordinator Task Manager
- Deployment Service (*1)
- TFTP Service (*1)
- PXE Services (*1)
- Resource Coordinator DB Server (PostgreSQL)

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

Perform the following procedure for each of the above services:

- a. Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Add a resource]-[4 - Generic Service] from the displayed menu.

The [New Resource Wizard] window will be displayed.

- b. Select the above services on "Select Service" and click <Next>.

"Confirmation" will be displayed.

c. Check the information displayed for "Confirmation" and click <Next>.

If configuration is successful, the "Summary" will be displayed.

d. Click <Finish>.

After completing the configuration of all of the services, check that the added services are displayed in "Other Resources" of the "Summary of RC-manager" displayed in the center of the window.

2. Configure registry replication as a service in the manager "service or application".

Not necessary when ServerView Deployment Manager is used in the same subnet.

Configure the registry replication of resources based on the following table.

- x64

Resource for Configuration	Registry Key
Deployment Service	[HKEY_LOCAL_MACHINE]\SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard\ResourceDepot
	[HKEY_LOCAL_MACHINE]\SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard\DatabaseBroker\Default
PXE Services	[HKEY_LOCAL_MACHINE]\SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard\DHCP
	[HKEY_LOCAL_MACHINE]\SOFTWARE\Wow6432Node\Fujitsu\SystemcastWizard\PXE\ClientBoot\

- x86

Resource for Configuration	Registry Key
Deployment Service	[HKEY_LOCAL_MACHINE]\SOFTWARE\Fujitsu\SystemcastWizard\ResourceDepot
	[HKEY_LOCAL_MACHINE]\SOFTWARE\Fujitsu\SystemcastWizard\DatabaseBroker\Default
PXE Services	[HKEY_LOCAL_MACHINE]\SOFTWARE\Fujitsu\SystemcastWizard\DHCP
	[HKEY_LOCAL_MACHINE]\SOFTWARE\Fujitsu\SystemcastWizard\PXE\ClientBoot\

During configuration, enter the section of the registry keys after the brackets ([]).

Perform the following procedure for each of the above resources:

a. Right-click the target resource on "Other Resources" on the "Summary of RC-manager" displayed in the middle of the [Failover Cluster Management] window, and select [Properties] from the displayed menu.

The [*target_resource* Properties] window will be displayed.

b. Click <Add> on the [Registry Replication] tab.

The [Registry Key] window will be displayed.

c. Configure the registry key deleted in 2. in "Root registry key" and click <OK>.

When configuring the second registry key, repeat b. and c.

d. After configuration of the registry keys is complete, click <Apply>.

e. Once settings are applied, click <OK> to close the dialog.

3. Add the generic scripts to the manager "service or application".

Add the three generic scripts from the script files that were created in step 1. of "Create Cluster Resources". Perform the following procedure for each generic script.

- a. Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Add a resource]-[3 - Generic Script] from the displayed menu.

The [New Resource Wizard] window will be displayed.

- b. Set the script files created in step 1. of "Create Cluster Resources" in the "Script file path" of the "Generic Script Info", and click <Next>.

"Confirmation" will be displayed.

- c. Check the information displayed for "Confirmation" and click <Next>.

If configuration is successful, the "Summary" will be displayed.

- d. Click <Finish>.

After completing the configuration of all of the generic scripts, check that the added generic scripts are displayed in "Other Resources" of the "Summary of RC-manager" displayed in the center of the window.

4. Configure the dependencies of the resources of the manager "service or application".

Configure the dependencies of resources based on the following table.

Table D.6 Configuring Resource Dependencies

Resource for Configuration	Dependent Resource
Resource Coordinator Manager	Shared Disks
Resource Coordinator Task Manager	Shared Disks
Resource Coordinator Sub Web Server (Mongrel) Script	Resource Coordinator Task Manager
Resource Coordinator Sub Web Server (Mongrel2) Script	Resource Coordinator Task Manager
Resource Coordinator Web Server (Apache) Script	Shared Disks
Deployment Service (*1)	PXE Services
TFTP Service (*1)	Deployment Service
PXE Services (*1)	Admin LAN IP Address
Resource Coordinator DB Server (PostgreSQL)	Shared Disks

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

Perform the following procedure for each of the above resources:

- a. Right-click the target resource on "Other Resources" on the "Summary of RC-manager" displayed in the middle of the [Failover Cluster Management] window, and select [Properties] from the displayed menu.

The [*target_resource* Properties] window will be displayed.

- b. From the "Resource" of the [Dependencies] tab select the name of the "Dependent Resource" from "[Table D.6 Configuring Resource Dependencies](#)" and click <Apply>.

- c. Once settings are applied, click <OK>.

Start the cluster service

1. Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Bring this service or application online] from the displayed menu.

Confirm that all resources have been brought online.

2. Switch the manager "service or application" to the secondary node.

Confirm that all resources of the secondary node have been brought online.

Note

When registering the admin LAN subnet, additional settings are required.

For the setting method, refer to "Settings for Clustered Manager Configurations" in "7.8 Registering Admin LAN Subnets [Windows]" in the "User's Guide VE".

Set up the HBA address rename Setup Service

When configuring managers and the HBA address rename setup service in cluster systems, perform the following procedure.

Not necessary when ServerView Deployment Manager is used in the same subnet.

Performing the following procedure starts the HBA address rename setup service on the standby node in the cluster.

1. Switch the manager "service or application" to the primary node.

Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select the primary node using [Move this service or application to another node] from the displayed menu.

Switch the "Current Owner" of the "Summary of RC-manager" displayed in the center of the window to the primary node.

2. Configure the startup settings of the HBA address rename setup service of the secondary node.

- a. Execute the following command using the command prompt:

```
>"Installation_folder\WWN Recovery\opt\FJSVrcxrs\bin\rcxbactl.exe" <RETURN>
```

The [HBA address rename setup service] dialog is displayed.

- b. Define the following settings:

IP address of admin server

Specify the admin LAN IP address set in step 5. of "Create Cluster Resources".

Port number

Enter the port number that is used to communicate with the admin server. The port number at installation is 23461.

If the "rcxweb" port number of the admin server is changed, specify the number that has been changed.

- c. Click <Run>.

Confirm that the "Status" becomes "Running".

- d. Click <Stop>.

Confirm that the "Status" becomes "Stopping".

- e. Click <Cancel> and close the [HBA address rename setup service] dialog.

3. Switch the manager "service or application" to the secondary node.

Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select the resource name of the secondary node from the [Move this service or application to another node] from the displayed menu.

The "Current Owner" of the "Summary of RC-manager" switches to the secondary node.

4. Configure the startup settings of the HBA address rename setup service of the primary node.

The procedure is the same as step 2.

5. Take the manager "service or application" offline.

Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Take this service or application offline] from the displayed menu.

6. Configure a "service or application" for the HBA address rename service.
 - a. Right-click [Services and Applications] on the Failover Cluster Management tree, and select [More Actions]-[Create Empty Service or Application].
[New service or application] will be created under [Services and Applications].
 - b. Right-click [New service or application], and select [Properties] from the displayed menu.
The [New service or application properties] dialog is displayed.
 - c. Change the "Name" on the [General] tab, select the resource name of the primary node from "Preferred owners", and click <Apply>.
 - d. Once settings are applied, click <OK>.

From this point, this explanation assumes that the name of the "service or application" for the HBA address rename setup service has been configured as "RC-HBAar".

7. Add the generic scripts to the manager "service or application" for the HBA address rename service.
 - a. Right-click [Services and Applications]-[RC-HBAar] on the Failover Cluster Management tree, and select [Add a resource]-[3 - Generic Script] from the displayed menu.
The [New Resource Wizard] window will be displayed.
 - b. Set the script files in the "Script file path" of the "Generic Script Info", and click <Next>>.
"Confirmation" will be displayed.

Script File Path
Installation_folder\SVROR\Manager\cluster\script\HBAarCls.vbs

 - c. Check the information displayed for "Confirmation" and click <Next>>.
The "Summary" will be displayed.
 - d. Click <Finish>.

Check that the added "HBAarCls Script" is displayed in "Other Resources" of the "Summary of RC-manager" displayed in the center of the window.

8. Add the generic scripts for the coordinated starting of the "service or application" for the HBA address rename setup service, to the "service or application" for the manager.
 - a. Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Add a resource]-[3 - Generic Script] from the displayed menu.
The [New Resource Wizard] window will be displayed.
 - b. Set the script files in the "Script file path" of the "Generic Script Info", and click <Next>>.
"Confirmation" will be displayed.

Script File Path
Installation_folder\SVROR\Manager\cluster\script\HBAarClsCtl.vbs

 - c. Check the information displayed for "Confirmation" and click <Next>>.
The "Summary" will be displayed.
 - d. Click <Finish>.

Check that the added "HBAarClsCtl Script" is displayed in "Other Resources" of the "Summary of RC-manager" displayed in the center of the window.

9. Configure the dependencies of the resources of the manager "service or application".

Configure the dependencies of resources based on the following table.

Table D.7 Configuring Resource Dependencies

Resource for Configuration	Dependent Resource
PXE Services (*1)	HBAarClsCtl Script
HBAarClsCtl Script	Admin LAN IP Address

*1: The PXE Services have been configured in step 4, "Register Service Resources", but change them using the above procedure.

Configure the dependencies of resources based on the following table for each of the above resources:
Refer to step 4, "Register Service Resources" for how to perform the settings of Resource Dependencies.

10. Configure the property to refer to when executing the "HBAarClsCtl Script".

Execute the following command using the command prompt of the primary node:

```
>CLUSTER RES "HBAarClsCtl_Script" /PRIV HBAGroupName="RC-HBAar"<RETURN>
```

Note

Specify the name of the generic script added in step 8 for *HBAarClsCtl_Script*, and the name of the "service or application" for the HBA address rename service for *RC-HBAar*.

11. Bring the manager "service or application" online.
 - a. Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Bring this service or application online] from the displayed menu.

Confirm that all resources of the "RC-manager" have been brought online.

- b. Click [Services and Applications]-[RC-HBAar] on the Failover Cluster Management tree.

Check that the "Status" of the "Summary of RC-HBAar" is online, and the "Current Owner" is the primary node.

12. Configure the startup settings of the HBA address rename setup service of the primary node.

- a. Execute the following command using the command prompt:

```
>"Installation_folder\WWN Recovery\opt\FJSVrcxrs\bin\rcxbactl.exe" <RETURN>
```

The [HBA address rename setup service] dialog is displayed.

- b. Confirm that the "Status" is "Running".
 - c. Click <Cancel> and close the [HBA address rename setup service] dialog.

13. Switch the manager "service or application" to the primary node.

- a. Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select the primary node using [Move this service or application to another node] from the displayed menu.

The "Current Owner" of the "Summary of RC-manager" switches to the primary node.

- b. Click [Services and Applications]-[RC-HBAar] on the Failover Cluster Management tree.

Check that the "Status" of the "Summary of RC-HBAar" is online, and the "Current Owner" is the secondary node.

14. Confirm the status of the HBA address rename setup service of the secondary node.

The procedure is the same as step 12.

Note

- Set the logging level of Failover Cluster to 3 (the default) or higher.

It is possible to confirm and change the logging level by executing the following command using the command prompt:

Logging level confirmation

```
>CLUSTER /PROP:ClusterLogLevel <RETURN>
```

Changing the logging level (Specifying level 3)

```
>CLUSTER LOG /LEVEL:3 <RETURN>
```

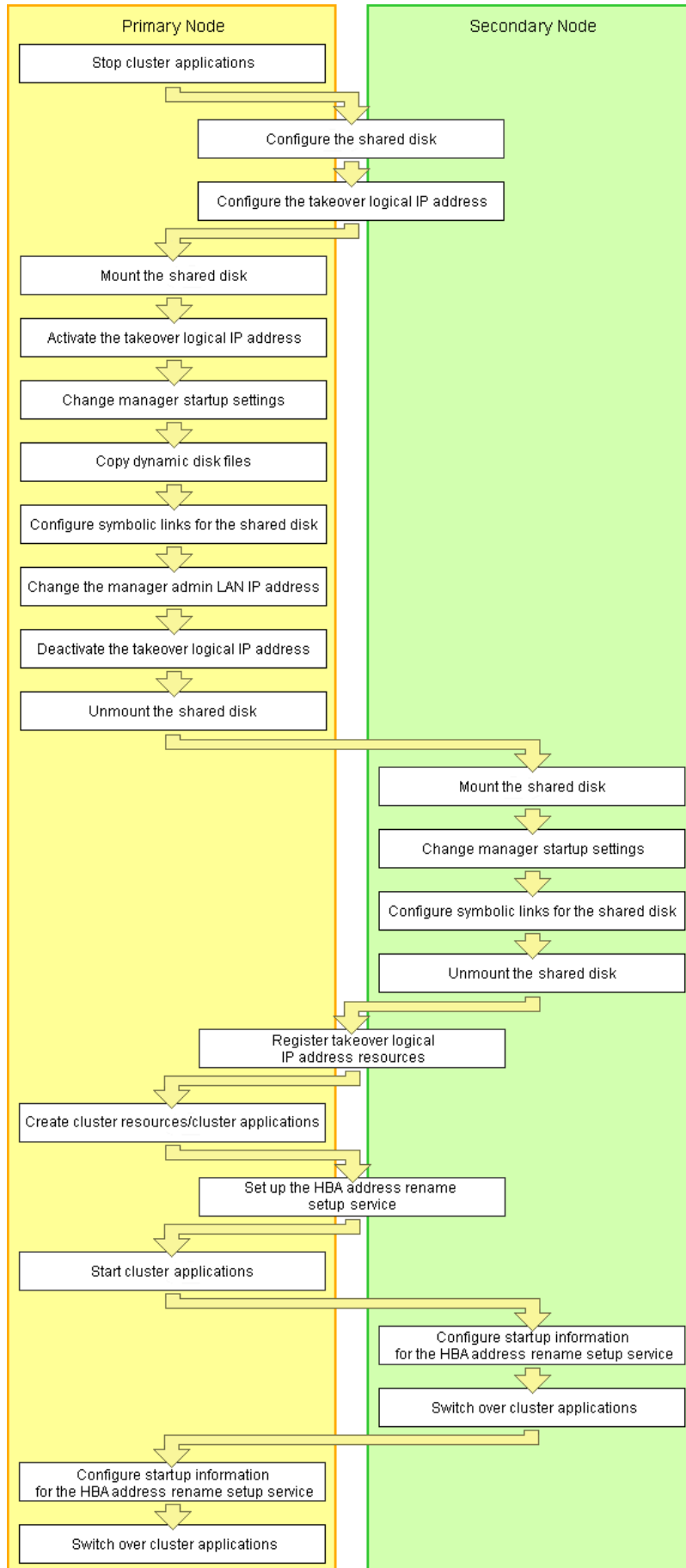
- The "service or application" configured in "Set up the HBA address rename Setup Service" for the HBA address rename setup service, is controlled so that it is online on the other node, and online processing is performed in coordination with the manager "service or application".
For "service or application" for the HBA address rename setup service, do not move the node using operations from the [Failover Cluster Management] window.
-

D.3.2 Configuration [Linux Manager]

Perform setup on the admin server.

The flow of setup is as shown below.

Figure D.2 Manager Service Setup Flow



Setup of managers as cluster services (cluster applications) is performed using the following procedure.

Perform setup using OS administrator authority.

If the image file storage directory is changed from the default directory (`/var/opt/FJSVscw-deploysv/depot`) during installation, in a. of step 6 perform settings so that the image file storage directory is also located in the shared disk.

Not necessary when ServerView Deployment Manager is used in the same subnet.

1. Stop cluster applications (Primary node)

When adding to existing operations (cluster applications)

When adding a manager to an existing operation (cluster application), use the cluster system's operation management view (Cluster Admin) and stop operations (cluster applications).

2. Configure the shared disk and takeover logical IP address (Primary node/Secondary node)

- a. Shared disk settings

Use PRIMECLUSTER GDS and perform settings for the shared disk.

For details, refer to the PRIMECLUSTER Global Disk Services manual.

- b. Configure the takeover logical IP address

Use PRIMECLUSTER GLS and perform settings for the takeover logical IP address.

As it is necessary to activate the takeover logical IP address using the following procedure, do not perform registration of resources with PRIMECLUSTER (by executing the `/opt/FJSVhanet/usr/sbin/hanethvrsc create` command) at this point.

When adding to existing operations (cluster applications)

When using an existing takeover logical IP address, delete the PRIMECLUSTER GLS virtual interface information from the resources for PRIMECLUSTER.

For details, refer to the PRIMECLUSTER Global Link Services manual.

3. Mount the shared disk (Primary node)

Mount the shared disk for managers on the primary node.

4. Activate the takeover logical IP address (Primary node)

On the primary node, activate the takeover logical IP address for the manager.

For details, refer to the PRIMECLUSTER Global Link Services manual.

5. Change manager startup settings (Primary node)

Perform settings so that the startup process of the manager is controlled by the cluster system, not the OS.

Execute the following command on the primary node.

```
# /opt/FJSVrcvmr/cluster/bin/rcxclchkconfig setup <RETURN>
```

6. Copy dynamic disk files (Primary node)

Copy the files from the dynamic disk of the manager on the primary node to the shared disk for managers.

- a. Create the directory "`shared_disk_mount_point/Fujitsu/ROR/SVROR`" on the shared disk.

- b. Copy the directories and files on the local disk of the primary node to the created directory.

Execute the following command.

```
# tar cf - copy_target | tar xf - -C shared_disk_mount_point/Fujitsu/ROR/SVROR/ <RETURN>
```



Note

The following messages may be output when the tar command is executed. They have no effect on operations, so ignore them.

- tar: Removing leading `/' from member names

- tar: *file_name*: socket ignored

Directories and Files to Copy

- /opt/FJSVrcvmr/rails/config/rcx/rcxdb.pwd
- /etc/opt/FJSVrcvmr/customize_data
- /etc/opt/FJSVrcvmr/opt/FJSVssmgr/current/certificate
- /etc/opt/FJSVrcvmr/rails/config/rcx_secret.key
- /etc/opt/FJSVrcvmr/sys/apache/conf
- /var/opt/FJSVrcvmr
- /etc/opt/FJSVscw-common (*1)
- /var/opt/FJSVscw-common (*1)
- /etc/opt/FJSVscw-tftpsv (*1)
- /var/opt/FJSVscw-tftpsv (*1)
- /etc/opt/FJSVscw-pxesv (*1)
- /var/opt/FJSVscw-pxesv (*1)
- /etc/opt/FJSVscw-deploysv (*1)
- /var/opt/FJSVscw-deploysv (*1)
- /etc/opt/FJSVscw-utils (*1)
- /var/opt/FJSVscw-utils (*1)

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

c. Change the names of the copied directories and files listed below.

Execute the following command. Make sure a name such as *source_file_name(source_directory_name)_old* is specified for the *target_file_name(target_directory_name)*.

```
# mv -i source_file_name(source_directory_name) target_file_name(target_directory_name) <RETURN>
```

- /opt/FJSVrcvmr/rails/config/rcx/rcxdb.pwd
- /etc/opt/FJSVrcvmr/customize_data
- /etc/opt/FJSVrcvmr/opt/FJSVssmgr/current/certificate
- /etc/opt/FJSVrcvmr/rails/config/rcx_secret.key
- /etc/opt/FJSVrcvmr/sys/apache/conf
- /var/opt/FJSVrcvmr
- /etc/opt/FJSVscw-common (*1)
- /var/opt/FJSVscw-common (*1)
- /etc/opt/FJSVscw-tftpsv (*1)
- /var/opt/FJSVscw-tftpsv (*1)
- /etc/opt/FJSVscw-pxesv (*1)
- /var/opt/FJSVscw-pxesv (*1)
- /etc/opt/FJSVscw-deploysv (*1)
- /var/opt/FJSVscw-deploysv (*1)
- /etc/opt/FJSVscw-utils (*1)
- /var/opt/FJSVscw-utils (*1)

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

7. Configure symbolic links for the shared disk (Primary node)

a. Configure symbolic links for the copied directories and files.

Configure symbolic links from the directories and files on the local disk of the primary node for the directories and files on the shared disk.

Execute the following command.

```
# ln -s shared_disk local_disk <RETURN>
```

For *shared_disk* specify the shared disk in "Table D.8 Directories to Link" or "Table D.9 Files to Link".

For *local_disk*, specify the local disk in "Table D.8 Directories to Link" or "Table D.9 Files to Link".

Table D.8 Directories to Link

Shared Disk	Local Disk
<i>Shared_disk_mount_point</i> /Fujitsu/ROR/SVROR/etc/opt/FJSVrcvmr/customize_data	/etc/opt/FJSVrcvmr/customize_data
<i>shared_disk_mount_point</i> /Fujitsu/ROR/SVROR/etc/opt/FJSVrcvmr/opt/FJSVssmgr/current/certificate	/etc/opt/FJSVrcvmr/opt/FJSVssmgr/current/certificate
<i>shared_disk_mount_point</i> /Fujitsu/ROR/SVROR/etc/opt/FJSVrcvmr/sys/apache/conf	/etc/opt/FJSVrcvmr/sys/apache/conf
<i>Shared_disk_mount_point</i> /Fujitsu/ROR/SVROR/var/opt/FJSVrcvmr	/var/opt/FJSVrcvmr
<i>Shared_disk_mount_point</i> /Fujitsu/ROR/SVROR/etc/opt/FJSVscw-common (*1)	/etc/opt/FJSVscw-common
<i>Shared_disk_mount_point</i> /Fujitsu/ROR/SVROR/var/opt/FJSVscw-common (*1)	/var/opt/FJSVscw-common
<i>Shared_disk_mount_point</i> /Fujitsu/ROR/SVROR/etc/opt/FJSVscw-tftpsv (*1)	/etc/opt/FJSVscw-tftpsv
<i>Shared_disk_mount_point</i> /Fujitsu/ROR/SVROR/var/opt/FJSVscw-tftpsv (*1)	/var/opt/FJSVscw-tftpsv
<i>Shared_disk_mount_point</i> /Fujitsu/ROR/SVROR/etc/opt/FJSVscw-pxesv (*1)	/etc/opt/FJSVscw-pxesv
<i>Shared_disk_mount_point</i> /Fujitsu/ROR/SVROR/var/opt/FJSVscw-pxesv (*1)	/var/opt/FJSVscw-pxesv
<i>Shared_disk_mount_point</i> /Fujitsu/ROR/SVROR/etc/opt/FJSVscw-deploysv (*1)	/etc/opt/FJSVscw-deploysv
<i>Shared_disk_mount_point</i> /Fujitsu/ROR/SVROR/var/opt/FJSVscw-deploysv (*1)	/var/opt/FJSVscw-deploysv
<i>Shared_disk_mount_point</i> /Fujitsu/ROR/SVROR/etc/opt/FJSVscw-utils (*1)	/etc/opt/FJSVscw-utils
<i>Shared_disk_mount_point</i> /Fujitsu/ROR/SVROR/var/opt/FJSVscw-utils (*1)	/var/opt/FJSVscw-utils

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

Table D.9 Files to Link

Shared Disk	Local Disk
<i>Shared_disk_mount_point</i> /Fujitsu/ROR/SVROR/opt/FJSVrcvmr/rails/config/rcx/rcxdb.pwd	/opt/FJSVrcvmr/rails/config/rcx/rcxdb.pwd

Shared Disk	Local Disk
<i>Shared_disk_mount_point</i> /Fujitsu/ROR/SVROR/etc/opt/ FJSVrcvmr/rails/config/rcx_secret.key	/etc/opt/FJSVrcvmr/rails/config/ rcx_secret.key

b. When changing the image file storage directory, perform the following.

When changing the image file storage directory, refer to "5.8 rcxadm imagmgr" in the "Reference Guide (Command) VE", and change the path for the image file storage directory.

Also, specify a directory on the shared disk for the new image file storage directory.

Not necessary when ServerView Deployment Manager is used in the same subnet.

8. Change the Manager Admin LAN IP Address (Primary node)

Change the admin LAN IP address of the manager.

Execute the following command.

```
# /opt/FJSVrcvmr/bin/rcxadm mgrctl modify -ip IP_address <RETURN>
```

For *IP_address*, specify the admin LAN IP address activated in step 4.

9. Deactivate the takeover logical IP address (Primary node)

On the primary node, deactivate the takeover logical IP address for the manager.

For details, refer to the PRIMECLUSTER Global Link Services manual.

10. Unmount the shared disk (Primary node)

Unmount the shared disk for managers from the primary node.

11. Mount the shared disk (Secondary node)

Mount the shared disk for managers on the secondary node.

12. Change manager startup settings (Secondary node)

Perform settings so that the startup process of the manager is controlled by the cluster system, not the OS.

On the secondary node, execute the same command as used in step 5.

13. Configure symbolic links for the shared disk (Secondary node)

a. Change the directory names and file names given in c. of step 6.

b. Configure symbolic links for the shared disk.

Configure symbolic links from the directories and files on the local disk of the secondary node for the directories and files on the shared disk.

The directories and files to set symbolic links for are the same as those for "[Table D.8 Directories to Link](#)" and "[Table D.9 Files to Link](#)".

14. Unmount the shared disk (Secondary node)

Unmount the shared disk for managers from the secondary node.

15. Register takeover logical IP address resources (Primary node/Secondary node)

On PRIMECLUSTER GLS, register the takeover logical IP address as a PRIMECLUSTER resource.



Note

When using an existing takeover logical IP address, as it was deleted in step 2., registration as a resource is necessary.

For details, refer to the PRIMECLUSTER Global Link Services manual.

16. Create cluster resources/cluster applications (Primary node)

- a. Use the RMS Wizard of the cluster system to create the necessary PRIMECLUSTER resources on the cluster service (cluster application).

When creating a new cluster service (cluster application), select Application-Create and create the settings for primary node as Machines[0] and the secondary node as Machines[1]. Then create the following resources on the created cluster service (cluster application).

Perform the RMS Wizard settings for any of the nodes comprising the cluster.

For details, refer to the PRIMECLUSTER manual.

- Cmdline resources

Create the Cmdline resources for Resource Orchestrator.

On RMS Wizard, select "CommandLines" and perform the following settings.

- Start script: /opt/FJSVrcvmr/cluster/cmd/rcxclstartcmd
- Stop script: /opt/FJSVrcvmr/cluster/cmd/rcxclstopcmd
- Check script: /opt/FJSVrcvmr/cluster/cmd/rcxclcheckcmd



When specifying a value other than nothing for the attribute value StandbyTransitions of a cluster service (cluster application), enable the Flag of ALLEXITCODES(E) and STANDBYCAPABLE(O).

When adding to existing operations (cluster applications)

When adding Cmdline resources to existing operations (cluster applications), decide the startup priority order considering the restrictions of the other components that will be used in combination with the operation (cluster application).

- Gls resources

Configure the takeover logical IP address to use for the cluster system.

On the RMS Wizard, select "Gls:Global-Link-Services", and set the takeover logical IP address.

When using an existing takeover logical IP address this operation is not necessary.

- Fsystem resources

Set the mount point of the shared disk.

On the RMS Wizard, select "LocalFileSystems", and set the file system. When no mount point has been defined, refer to the PRIMECLUSTER manual and perform definition.

- Gds resources

Specify the settings created for the shared disk.

On the RMS Wizard, select "Gds:Global-Disk-Services", and set the shared disk. Specify the settings created for the shared disk.

- b. Set the attributes of the cluster application.

When you have created a new cluster service (cluster application), use the cluster system's RMS Wizard to set the attributes.

- In the Machines+Basics settings, set "yes" for AutoStartUp.
- In the Machines+Basics settings, set "HostFailure|ResourceFailure|ShutDown" for AutoSwitchOver.
- In the Machines+Basics settings, set "yes" for HaltFlag.
- When using hot standby for operations, in the Machines+Basics settings, set "ClearFaultRequest|StartUp|SwitchRequest" for StandbyTransitions.
When configuring the HBA address rename setup service in cluster systems, ensure that hot standby operation is configured.

- c. After settings are complete, save the changes and perform Configuration-Generate and Configuration-Activate.

17. Set up the HBA address rename setup service (Primary node/Secondary node)

Configuring the HBA address rename setup service for cluster systems

When configuring managers and the HBA address rename setup service in cluster systems, perform the following procedure.

Not necessary when ServerView Deployment Manager is used in the same subnet.

Performing the following procedure starts the HBA address rename setup service on the standby node in the cluster.

a. HBA address rename setup service startup settings (Primary node)

Configure the startup settings of the HBA address rename setup service.
Execute the following command.

```
# /opt/FJSVrcvhb/cluster/bin/rcvhbclsetup <RETURN>
```

b. Configuring the HBA address rename setup service (Primary node)

Configure the settings of the HBA address rename setup service.
Execute the following command on the primary node.

```
# /opt/FJSVrcvhb/bin/rcxhbactl modify -ip IP_address <RETURN>  
# /opt/FJSVrcvhb/bin/rcxhbactl modify -port port_number <RETURN>
```

IP Address

Specify the takeover logical IP address for the manager.

Port number

Specify the port number for communication with the manager. The port number at installation is 23461.

c. HBA address rename setup service Startup Settings (Secondary node)

Configure the startup settings of the HBA address rename setup service.
On the secondary node, execute the same command as used in step a.

d. Configuring the HBA address rename setup service (Secondary node)

Configure the settings of the HBA address rename setup service.
On the secondary node, execute the same command as used in step b.

18. Start cluster applications (Primary node)

Use the cluster system's operation management view (Cluster Admin) and start the manager cluster service (cluster application).

19. Set up the HBA address rename setup service startup information (Secondary node)

a. Execute the following command.

```
# nohup /opt/FJSVrcvhb/bin/rcxhbactl start& <RETURN>
```

The [HBA address rename setup service] dialog is displayed.

b. Click <Stop>.

Confirm that the "Status" becomes "Stopping".

c. Click <Run>.

Confirm that the "Status" becomes "Running".

d. Click <Stop>.

Confirm that the "Status" becomes "Stopping".

e. Click <Cancel> and close the [HBA address rename setup service] dialog.

20. Switch over cluster applications (Secondary node)

Use the cluster system's operation management view (Cluster Admin) and switch the manager cluster service (cluster application) to the secondary node.

21. Set up the HBA address rename setup service startup information (Primary node)

The procedure is the same as step 19.

22. Switch over cluster applications (Primary node)

Use the cluster system's operation management view (Cluster Admin) and switch the manager cluster service (cluster application) to the primary node.

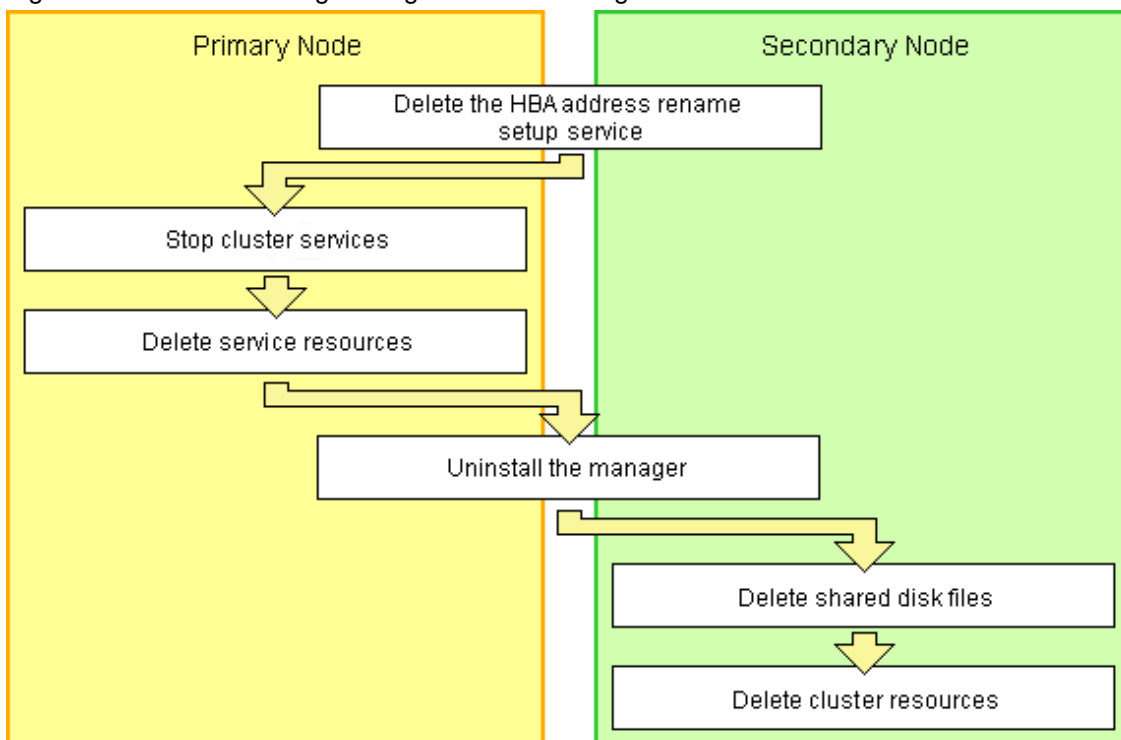
D.4 Releasing Configuration

This section explains how to delete the cluster services of managers being operated on cluster systems.

D.4.1 Releasing Configuration [Windows Manager]

The flow of deleting cluster services of managers is as indicated below.

Figure D.3 Flow of Deleting Manager Service Settings



Delete settings for manager cluster services using the following procedure. This explanation assumes that the manager is operating on the primary node.

Delete the HBA address rename Setup Service

When the HBA address rename setup service and managers in cluster systems have been configured, perform the following procedure.

Not necessary when ServerView Deployment Manager is used in the same subnet.

1. Take the "service or application" for the HBA address rename setup service offline.
 - a. Open the [Failover Cluster Management] window and connect to the cluster system.
 - b. Right-click [Services and Applications]-[RC-HBAar] on the Failover Cluster Management tree, and select [Take this service or application offline] from the displayed menu.
2. Take the manager "service or application" offline.

Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Take this service or application offline] from the displayed menu.

3. Delete the scripts of the "service or application" for the HBA address rename service.
 - a. Click [Services and Applications]-[RC-HBAar] on the Failover Cluster Management tree.
 - b. Right-click the "HBAarCls Script" of the "Other Resources" on the "Summary of RC-HBAar" displayed in the middle of the [Failover Cluster Management] window, and select [Delete] from the displayed menu.
4. Delete the "service or application" for the HBA address rename setup service.
 Right-click [Services and Applications]-[RC-HBAar] on the Failover Cluster Management tree, and select [Delete] from the displayed menu.
5. Configure the dependencies of the resources in the "service or application" for the manager back to the status they were in before setting up the HBA address rename setup service.
 - a. Right-click the "PXE Services" on "Other Resources" on the "Summary of RC-manager" displayed in the middle of the [Failover Cluster Management] window, and select [Properties] from the displayed menu.
 The [PXE Services Properties] window will be displayed.
 - b. In the "Resource" of the [Dependencies] tab, select the name of the Admin LAN IP Address and click <Apply>.
 - c. Once settings are applied, click <OK>.
6. Delete the generic scripts for the coordinated boot of the "service or application" for the HBA address rename service from the "service or application" for the manager.
 - a. Click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree.
 - b. Right-click the "HBAarCls Script" of the "Other Resources" on the "Summary of RC-manager" displayed in the middle of the [Failover Cluster Management] window, and select [Delete] from the displayed menu.

Stop the cluster service

When configuring the "Delete the HBA address rename Setup Service", perform from step 3.

1. Open the [Failover Cluster Management] window and connect to the cluster system.
2. Take the manager "service or application" offline.
 Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Take this service or application offline] from the displayed menu.
3. Bring the shared disk for the manager "service or application" online.
 Right-click the shared disk on "Disk Drives" on the "Summary of RC-manager" displayed in the middle of the [Failover Cluster Management] window, and select [Bring this resource online] from the displayed menu.

Delete service resources

Delete the services, scripts, and IP address of the manager "service or application".

Using the following procedure, delete all the "Other Resources".

1. Click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree.
2. Right-click the resources on "Other Resources" on the "Summary of RC-manager" displayed in the middle of the [Failover Cluster Management] window, and select [Delete] from the displayed menu.
3. Using the following procedure, delete the resources displayed in the "Server Name" of the "Summary of RC-manager" in the middle of the [Failover Cluster Management] window.
 - a. Right-click "IP Address: *IP_address*", and select [Delete] from the displayed menu.
 - b. Right-click "Name: *Network_name*", and select [Delete] from the displayed menu.

When registering the admin LAN subnet, delete the "DHCP Service" using the following procedure.

4. Set the path of the "DHCP Service".
 - a. Right-click the resources of the "DHCP Service" on the "Summary of RC-manager" displayed in the middle of the [Failover Cluster Management] window, and select [Properties] from the displayed menu.
The [New DHCP Service Properties] window will be displayed.
 - b. Configure the path on the [General] tab based on the following table.

Item	Value to Specify
Database path	%SystemRoot%\System32\dhcp\
Audit file path	%SystemRoot%\System32\dhcp\
Backup path	%SystemRoot%\System32\dhcp\backup\

5. Right-click the resources of the "DHCP Service" on the "Summary of RC-manager" displayed in the middle of the [Failover Cluster Management] window, and select [Delete] from the displayed menu.

Manager Uninstallation

1. Refer to "11.1.2 Uninstallation [Windows Manager]", and uninstall the manager on the primary node.
2. Allocate the shared disk to the secondary node.

Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Move this service or application to another node]-[1 - Move to node *node_name*] from the displayed menu.
The name of the secondary node is displayed for *node_name*.

3. Uninstall the manager of the secondary node.

Delete shared disk files

Use Explorer to delete the "*Drive_name*:\Fujitsu\ROR\SVROR\" folder on the shared disk.

Delete cluster resources

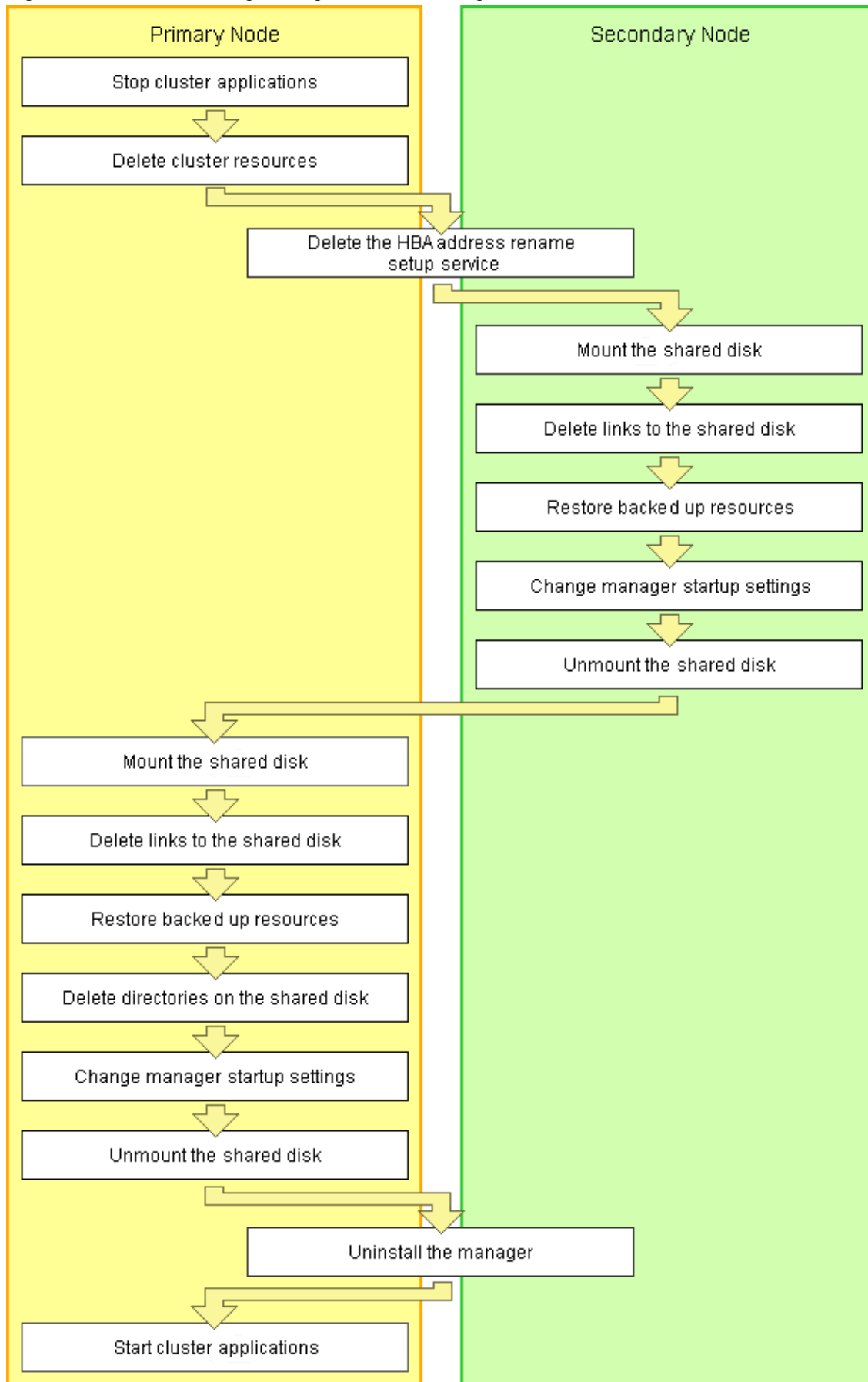
Delete the manager "service or application".

Right-click [Services and Applications]-[RC-manager] on the Failover Cluster Management tree, and select [Delete] from the displayed menu.

D.4.2 Releasing Configuration [Linux Manager]

The flow of deleting cluster services (cluster applications) of managers is as indicated below.

Figure D.4 Flow of Deleting Manager Service Settings



Releasing of manager cluster services (cluster applications) is performed using the following procedure.
Perform releasing of configuration using OS administrator authority.

1. Stop cluster applications (Primary node)

Use the cluster system's operation management view (Cluster Admin) and stop the cluster service (cluster application) of manager operations.

2. Delete cluster resources (Primary node)

Use the RMS Wizard of the cluster system, and delete manager operation resources registered on the target cluster service (cluster application).

When a cluster service (cluster application) is in a configuration that only uses resources of Resource Orchestrator, also delete the cluster service (cluster application).

On the RMS Wizard, if only deleting resources, delete the following:

- Cmdline resources (Only script definitions for Resource Orchestrator)
- Gls resources (When they are no longer used)
- Gds resources (When they are no longer used)
- Fsystem resources (The mount point for the shared disk for managers)

Release the RMS Wizard settings for any of the nodes comprising the cluster.
For details, refer to the PRIMECLUSTER manual.

3. Delete the HBA address rename setup service (Primary node/Secondary node)

When the HBA address rename setup service has been configured for a cluster system

When the HBA address rename setup service and managers in cluster systems have been configured, perform the following procedure.

Not necessary when ServerView Deployment Manager is used in the same subnet.

a. Stopping the HBA address rename setup service (Secondary node)

Stop the HBA address rename setup service.

Execute the following command, and check if the process of the HBA address rename setup service is indicated.

```
# ps -ef | grep rcvhb | grep -v grep <RETURN>
```

When processes are output after the command above is executed, execute the following command and stop the HBA address rename setup service. If no processes were output, this procedure is unnecessary.

```
# /etc/init.d/rcvhb stop <RETURN>
```

b. Releasing HBA address rename setup service Startup Settings (Secondary node)

Release the startup settings of the HBA address rename setup service.

Execute the following command.

```
# /opt/FJSVrcvhb/cluster/bin/rcvhbclunsetup <RETURN>
```

c. Deleting links (Secondary node)

If processes of the HBA address rename setup service were not indicated in step a., this procedure is unnecessary.

Execute the following command and delete symbolic links.

```
# rm symbolic_link <RETURN>
```

- Symbolic Links to Delete
 - /var/opt/FJSVscw-common
 - /var/opt/FJSVscw-tftpsv

- /etc/opt/FJVSscw-common
- /etc/opt/FJVSscw-tftpsv

d. Reconfiguring symbolic links

If processes of the HBA address rename setup service were not indicated in step a., this procedure is unnecessary. Execute the following command, and reconfigure the symbolic links from the directory on the local disk for the directory on the shared disk.

```
# ln -s shared_disk local_disk <RETURN>
```

For *shared_disk*, specify the shared disk in "Table D.10 Directories to Relink".
For *local_disk*, specify the local disk in "Table D.10 Directories to Relink".

Table D.10 Directories to Relink

Shared Disk	Local Disk
<i>Shared_disk_mount_point</i> /Fujitsu/ROR/SVROR/var/opt/FJVSscw-common	/var/opt/FJVSscw-common
<i>Shared_disk_mount_point</i> /Fujitsu/ROR/SVROR/var/opt/FJVSscw-tftpsv	/var/opt/FJVSscw-tftpsv
<i>Shared_disk_mount_point</i> /Fujitsu/ROR/SVROR/etc/opt/FJVSscw-common	/etc/opt/FJVSscw-common
<i>Shared_disk_mount_point</i> /Fujitsu/ROR/SVROR/etc/opt/FJVSscw-tftpsv	/etc/opt/FJVSscw-tftpsv

e. Stopping the HBA address rename setup service (Primary node)

Stop the HBA address rename setup service.
On the primary node, execute the same command as used in step a.

f. Releasing the HBA address rename setup service Startup Settings (Primary node)

Release the startup settings of the HBA address rename setup service.
On the primary node, execute the same command as used in step b.

g. Deleting links (Primary node)

If processes of the HBA address rename setup service were not indicated in step e., this procedure is unnecessary.
On the primary node, execute the same command as used in step c.

h. Reconfiguring symbolic links

If processes of the HBA address rename setup service were not indicated in step e., this procedure is unnecessary.
On the primary node, execute the same command as used in step d.

4. Mount the shared disk (Secondary node)

When it can be confirmed that the shared disk for managers has been unmounted from the primary node and the secondary node, mount the shared disk for managers on the secondary node.

5. Delete links to the shared disk (Secondary node)

Delete the symbolic links specified for the directories and files on the shared disk from the directories and files on the local disk of the secondary node.

Execute the following command.

```
# rm symbolic_link <RETURN>
```

- Symbolic links to directories to delete
 - /etc/opt/FJVSrcvnr/customize_data
 - /etc/opt/FJVSrcvnr/opt/FJVSsmgr/current/certificate
 - /etc/opt/FJVSrcvnr/sys/apache/conf
 - /var/opt/FJVSrcvnr
 - /etc/opt/FJVSscw-common (*1)

- /var/opt/FJSVscw-common (*1)
- /etc/opt/FJSVscw-tftpsv (*1)
- /var/opt/FJSVscw-tftpsv (*1)
- /etc/opt/FJSVscw-pxesv (*1)
- /var/opt/FJSVscw-pxesv (*1)
- /etc/opt/FJSVscw-deploysv (*1)
- /var/opt/FJSVscw-deploysv (*1)
- /etc/opt/FJSVscw-utils (*1)
- /var/opt/FJSVscw-utils (*1)

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

- Symbolic links to files to delete
 - /opt/FJSVrcvmr/rails/config/rcx/rcxdb.pwd
 - /etc/opt/FJSVrcvmr/rails/config/rcx_secret.key

6. Restore backed up resources (Secondary node)

Restore the directories and files that were backed up when configuring the cluster environment.

Execute the following command. Specify the files and directories that were backed up when configuring the cluster environment using `names` such as `source_file_name(source_directory_name)_old` for the `source_restoration_file_name(source_restoration_directory_name)`. For `restoration_target_file_name(restoration_target_directory_name)`, specify file names or directory names corresponding to the `source_restoration_file_name(source_restoration_directory_name)`.

```
# mv -i source_restoration_file_name(source_restoration_directory_name)
restoration_target_file_name(restoration_target_directory_name) <RETURN>
```

Restore the following directory names and file names.

- /opt/FJSVrcvmr/rails/config/rcx/rcxdb.pwd
- /etc/opt/FJSVrcvmr/opt/FJSVssmgr/current/certificate
- /etc/opt/FJSVrcvmr/rails/config/rcx_secret.key
- /etc/opt/FJSVrcvmr/sys/apache/conf
- /var/opt/FJSVrcvmr
- /etc/opt/FJSVscw-common (*1)
- /var/opt/FJSVscw-common (*1)
- /etc/opt/FJSVscw-tftpsv (*1)
- /var/opt/FJSVscw-tftpsv (*1)
- /etc/opt/FJSVscw-pxesv (*1)
- /var/opt/FJSVscw-pxesv (*1)
- /etc/opt/FJSVscw-deploysv (*1)
- /var/opt/FJSVscw-deploysv (*1)
- /etc/opt/FJSVscw-utils (*1)
- /var/opt/FJSVscw-utils (*1)

*1: Not necessary when ServerView Deployment Manager is used in the same subnet.

7. Change manager startup settings (Secondary node)

Perform settings so that the startup process of the manager is controlled by the OS, not the cluster system. Execute the following command on the secondary node.

```
# /opt/FJSVrcvmr/cluster/bin/rxcclchkconfig unsetup <RETURN>
```

8. Unmount the shared disk (Secondary node)

Unmount the shared disk for managers from the secondary node.

9. Mount the shared disk (Primary node)

Mount the shared disk for managers on the primary node.

10. Delete links to the shared disk (Primary node)

Delete the symbolic links specified for the directories and files on the shared disk from the directories and files on the local disk of the primary node.

The directories and files to delete are the same as those for "Symbolic links to directories to delete" and "Symbolic links to files to delete" in step 5.

11. Restore backed up resources (Primary node)

Restore the directories and files that were backed up when configuring the cluster environment. Refer to step 6. for the procedure.

12. Delete directories on the shared disk (Primary node)

Delete the created directory "*Shared_disk_mount_point/Fujitsu/ROR/SVROR*" on the shared disk. Execute the following command.

```
# rm -r shared_disk_mount_point/Fujitsu/ROR/SVROR <RETURN>
```

When there is no need to check with the rm command, add the -f option. For the rm command, refer to the manual for the OS.

13. Change manager startup settings (Primary node)

Perform settings so that the startup process of the manager is controlled by the OS, not the cluster system. Refer to step 7. for the command to execute on the primary node.

14. Unmount the shared disk (Primary node)

Unmount the shared disk for managers from the primary node.

15. Uninstall the manager (Primary node/Secondary node)

Refer to "[11.1.3 Uninstallation \[Linux Manager\]](#)", and uninstall the managers on the primary node and the secondary node. When releasing the cluster configuration and returning to a single configuration, uninstall the manager from one of the nodes.

When operating managers in cluster environments, if the admin server settings are modified, change the admin server settings before using it in a single configuration.

For the method for changing the admin server settings, refer to "Chapter 8 Changing Admin Server Settings" of the "User's Guide VE".

16. Start cluster applications (Primary node)

When there are other cluster services (cluster applications), use the cluster system's operation management view (Cluster Admin) and start the cluster services (cluster applications).

D.5 Advisory Notes

This section explains advisory notes regarding the settings for managers in cluster operations, and their deletion.

Switching Cluster Services (Cluster Applications)

Events that occur when switching cluster services (cluster applications) cannot be displayed. Also, the message number 65529 may be displayed on the ROR console. Perform login again.

For details on the messages, refer to "Message number 65529" in "Messages".

Troubleshooting Information

Collect troubleshooting information referring to the instructions in "1.1 Collecting Troubleshooting Data (Virtual Edition)" in "Troubleshooting". At that time, execute the commands from the primary node of the admin server, and collect information from the primary node and managed servers.

Commands

Do not use the start or stop subcommand of `rcxadm mgrctl` to start or stop the manager.

Right-click the manager "service or application" on the Failover Cluster Management tree, and select [Bring this service or application online] or [Take this service or application offline] from the displayed menu.

Other commands can be executed as they are in normal cluster operation.

ROR Console

The registration state of server resources on the resource tree when an admin server is included in a chassis is as indicated below.

- The server resources being operated by the manager on the cluster node are displayed as "[Admin Server]".
- The server resources not being operated by the manager on the cluster node are displayed as "[Unregistered]".

Do not register the server resources of the cluster node that are displayed as "[Unregistered]".

Services (Daemons) Managed with PRIMECLUSTER [Linux Manager]

The following services (daemons) are managed with the Check script provided by Resource Orchestrator.

- `/etc/init.d/scwdepsvd`
- `/etc/init.d/scwpxesvd`
- `/etc/init.d/scwtftpd`
- `/opt/FJSVrcvmr/opt/FJSVssmgr/bin/cimserver`
- `/opt/FJSVrcvmr/sys/rcxtaskmgr`
- `/opt/FJSVrcvmr/sys/rcxmongrel1`
- `/opt/FJSVrcvmr/sys/rcxmongrel2`
- `/opt/FJSVrcvmr/sys/rcxhttpd`

Appendix E Upgrading from Earlier Versions

This chapter explains the upgrade procedures for the following environments.

- How to upgrade environments configured using ServerView Resource Coordinator VE (hereinafter RCVE) to this version of ServerView Resource Orchestrator Virtual Edition (hereinafter this version ROR VE) environments.
- How to upgrade environments configured using an earlier version of ServerView Resource Orchestrator Virtual Edition (hereinafter the old version ROR VE) to ServerView Resource Orchestrator Virtual Edition (hereinafter this version ROR VE) environments.

E.1 Overview

This section explains an overview of the following upgrades.

Support Scope

The combinations of managers and agents, clients, and HBA address rename setup service supported by Resource Orchestrator are as shown below.

Old Software	Resource Orchestrator	Upgradability	
RCVE V2.2.2	ROR VE V3.1	Yes	Refer to " Upgrade using Upgrade Installation ".
ROR VE V3.0	ROR VE V3.1	Yes	Refer to " Upgrade using Upgrade Installation ".

Yes: Supported
-: Not supported

Upgrade using Upgrade Installation

Perform the upgrade in the following order:

1. Upgrade the Manager
2. Upgrade the Agents
3. Upgrade the Clients and HBA Address Rename Setup Service

Upgrade can be performed using upgrade installation.

Upgrade installation uses the Resource Orchestrator installer to automatically upgrade earlier versions to the current version.

E.2 Manager

This section explains the upgrading of managers.

When operating managers in clusters, transfer using upgrade installation cannot be performed. Perform the upgrade manually.



.....

When upgrading from manager operating in clusters, replace the parts referring to the earlier versions of "ServerView Resource Coordinator VE manuals" with the earlier versions of "ServerView Resource Coordinator VE manuals" for the following procedure.

.....

Transferred Data

The following manager data is transferred:

- Resource Orchestrator setting information (Setting information for the environment of the earlier version)
- Certificates
- System images and cloning images (Files in the image file storage folder)

Also, with transfer using upgrade installation the following data is also transferred:

- Port number settings
- Power consumption data
- Batch files and script files for event-related functions

Data which is transferred during upgrade installation is created and stored in the following folder. Ensure that this folder is not deleted until after the upgrade is complete.

[Windows Manager]

32bit(x86) OS

Drive_name\Program Files\RCVE-upgradedata

64bit(x64) OS

Drive_name\Program Files (x86)\RCVE-upgradedata

[Linux Manager]

/var/opt/RCVE-upgradedata

/var/opt/backupscwdir

Preparations

Perform the following preparations and checks before upgrading:

- Check that the environment is one in which managers of this version can be operated.
For the operational environment, refer to "2.4 Software Environment" and "2.5 Hardware Environment" of the "Design Guide VE".
Take particular care regarding the memory capacity.
- To enable recovery in case there is unexpected trouble during the upgrade process, please back up the admin server. For how to back up the admin server, refer to "Appendix B Admin Server Backup and Restore" of the "ServerView Resource Coordinator VE Operation Guide".
- As well as backing up the admin server, also back up (copy) the following information:

- Port number settings

[Windows Manager]

Drive_name\WINDOWS\system32\drivers\etc\services

[Linux Manager]

/etc/services

- Batch files and script files for event-related functions

[Windows Manager]

Installation_folder\SVROR\Manager\etc\trapop.bat

[Linux Manager]

/etc/opt/FJSVrcvmr/trapop.sh

- Definition files

[Windows Manager]

Installation_folder\SVROR\Manager\etc\customize_data

[Linux Manager]

/etc/opt/FJSVrcvmr/customize_data

- When using GLS to perform redundancy of NICs for the admin LAN of managed servers, activate the admin LAN on the primary interface.

- To confirm that the upgrade is complete, if there are registered VM hosts on which there are VM guests, check from the ROR console that all of the VM guests are displayed and record their information before upgrading.
- When server switchover settings have been performed, it is not possible to upgrade when spare servers have been switched to. Restore any such servers before starting the upgrade. For how to restore, refer to the information about Server Switchover in the "ServerView Resource Coordinator VE Operation Guide".
- When using ETERNUS SF Storage Cruiser Manager or ETERNUS SF AdvancedCopy Manager, please stop the service or demon using the following procedure. For details on how to stop the service, refer to the manual of the relevant product.

Upgrade using Upgrade Installation

When upgrading to this version from RCVE V2.2.2, upgrade can be performed using upgrade installation. Perform the upgrade using the following procedure:



Note

- Do not change the hardware settings or configurations of managers, agents, or any other devices until upgrading is completed.
- When there are system images and cloning images, the same amount of disk space as necessary for the system images and cloning images is required on the admin server in order to temporarily copy the images during the upgrade. Before performing the upgrade, check the available disk space.
- When performing an upgrade installation, please do not access the installation folder of the earlier version or any of the files and folders inside it using the command prompt, Explorer, or an editor.
While it is being accessed, attempts to perform upgrade installation will fail.
If upgrade installation fails, stop accessing the files or folders and then perform the upgrade installation again.
- In the event that upgrade installation fails, please resolve the cause of the failure and perform upgrade installation again. If the problem cannot be resolved and upgrade installation fails again, please contact Fujitsu technical staff.
- When stopping the upgrade and restoring the earlier version, please do so by restoring the information that was backed up during the preparations.
When performing restoration and a manager of this version or an earlier version has been installed, please uninstall it.
After restoration, please delete the folder containing the backed up assets. For the restoration method (restore), refer to the "ServerView Resource Coordinator VE Operation Guide".
- Upgrade installation will delete patches that were applied to the earlier version.
[Linux Manager]
When the PATH variable has not been configured to enable execution of UpdateAdvisor (Middleware) commands from a user-defined location, performing upgrade installation will delete any patches that have been applied to the old version, but it will not delete product information or component information. Refer to the UpdateAdvisor (Middleware) manual and delete software and component information from the applied modification checklist.
- When operating managers in clusters, transfer using upgrade installation cannot be performed. Perform the upgrade manually.

1. Upgrade Installation

[Windows Manager]

Refer to "2.1.2 Installation [Windows Manager]", and execute the Resource Orchestrator installer.

The Resource Orchestrator setup window will be displayed. Check the contents of the license agreement, etc. and then click <Next>. The settings to be inherited from the earlier version will be displayed. Check them and click <Next>. Upgrade installation will begin.

[Linux Manager]

Refer to "2.1.3 Installation [Linux Manager]", and execute the Resource Orchestrator installer.

Check the contents of the license agreement, etc. and then enter "y".

The setting information that will be taken over from the earlier version will be displayed. Please check it and then enter "y". Upgrade installation will begin.

2. Restarting after Upgrade Installation is Finished [Windows Manager]

After upgrade installation is finished, restart the system in order to complete the upgrade.

Note

When using backup system images or collecting cloning images without upgrading agents, either reboot managed servers after the manager upgrade is completed, or restart the related services.

For restarting managed servers and the related services, refer to "5.2 Agent" of the "ServerView Resource Coordinator VE Setup Guide".

Manual Upgrade

Upgrading from RCVE managers in clustered operation to ROR VE is performed by exporting and importing system configuration files for pre-configuration.

Perform the upgrade using the following procedure:

See

For pre-configuration, refer to the following manuals:

- "User's Guide VE"
 - "Chapter 12 Pre-configuration for Registering and Changing Resources"
 - "Appendix B Format of CSV System Configuration Files"

Note

- Do not change the hardware settings or configurations of managers, agents, or any other devices until upgrading is completed.

1. Set Maintenance Mode

Use the ROR console to place all managed servers into maintenance mode.

2. System Configuration File Export

Use the pre-configuration function of the earlier version and export the system configuration file in CSV format. During the export, do not perform any other operations with Resource Orchestrator.

For the export method, refer to the "ServerView Resource Coordinator VE Setup Guide".

3. Back up (copy) Assets to Transfer

- a. Perform backup (copying) of the certificates of the earlier version.

Back up (copy) the following folders and directories:

[Windows Manager]

Upgrade from RCVE 2.2.2

Installation_folder\Manager\etc\opt\FJSVssmgr\current\certificate

Installation_folder\Manager\etc\opt\FJSVrcxdm\certificate

Installation_folder\Manager\sys\apache\conf\ssl.crt

Installation_folder\Manager\sys\apache\conf\ssl.key

Upgrade from since ROR VE 3.0.0

Installation_folder\SVROR\Manager\etc\opt\FJSVssmgr\current\certificate

Installation_folder\SVROR\Manager\etc\opt\FJSVrcxdm\certificate

Installation_folder\SVROR\Manager\sys\apache\conf\ssl.crt

Installation_folder\SVROR\Manager\sys\apache\conf\ssl.key

[Linux Manager]
/etc/opt/FJSVrcvmr/opt/FJSVssmgr/current/certificate
/etc/opt/FJSVrcvmr/sys/apache/conf/ssl.crt
/etc/opt/FJSVrcvmr/sys/apache/conf/ssl.key

- b. Back up (copy) the folder containing the cloning images of the earlier version to a location other than the installation folder and the image file storage folder.

When using the default image file storage folder, back up (copy) the following folder or directory:

[Windows Manager]
Upgrade from RCVE 2.2.2
Installation_folder\ScwPro\depot\Cloneimg
Upgrade from since ROR VE 3.0.0
Installation_folder\SVROR\ScwPro\depot\Cloneimg

[Linux Manager]
/var/opt/FJSVscw-deploysv/depot/CLONEIMG

When using a folder or directory other than the default, back up (copy) the "Cloneimg" folder or "CLONEIMG" directory used.

- c. Back up (copy) the following informations.

- Port number settings

[Windows]
Drive_name\WINDOWS\system32\drivers\etc\services

[Linux]
/etc/services

- Batch files and script files for event-related functions

[Windows]
Upgrade from RCVE V2.2.2
Installation_folder\Manager\etc\trapop.bat
Upgrade from since ROR VE V3.0.0
Installation_folder\SVROR\Manager\etc\trapop.bat

[Linux]
/etc/opt/FJSVrcvmr/trapop.sh

Note

- When operating managers in clusters, the above folders or directories are stored on the shared disk. Check if files, folders, or directories stored in the above locations are correctly backed up (copied).
The backup (copy) storage target can be set to be stored in a folder or directory on the shared disk other than "RCoordinator" which is created during setup of the manager cluster service.
- When operating managers in clusters, the back up (copy) of folders or directories should be executed on the primary node.
- Before making a backup (copy) of system images and cloning images, check the available disk space. For the disk space necessary for system images and cloning images, refer to the "ServerView Resource Coordinator VE Installation Guide". When there is no storage folder for system images and cloning images, this step is not necessary.

When operating managers in clusters, refer to "B.4 Releasing Configuration" in the "ServerView Resource Coordinator VE Installation Guide" of the earlier version, and uninstall the cluster services and the manager of the earlier versions.

Note

User account information is deleted when managers are uninstalled. Refer to step 7. and perform reconfiguration from the ROR console.

4. Uninstallation of earlier version managers

Refer to the "ServerView Resource Coordinator VE Installation Guide" for the method for uninstalling the manager of the earlier version.

When operating managers in clusters, refer to "B.4 Releasing Configuration" in the "ServerView Resource Coordinator VE Installation Guide" of the earlier version, and uninstall the cluster services and the manager of the earlier versions.

Note

- Do not perform "Delete servers" as described in Preparations of the "ServerView Resource Coordinator VE Installation Guide". When managed servers using HBA address rename have been deleted, it is necessary to reboot managed servers after upgrading of the manager is completed.
- User account information is deleted when managers are uninstalled. Refer to step 7. and perform reconfiguration from the RC console.

5. Installation of Managers of This Version

Install managers of this version.

For installation, refer to "2.1 Manager Installation".

When operating managers in cluster environments, refer to "Appendix D Manager Cluster Operation Settings and Deletion", uninstall the manager and then configure the cluster services.

Note

When installing managers, specify the same admin LAN as used for the earlier version on the [Admin LAN Selection] window.

After installing managers, use the following procedure to restore the certificates and image file storage folder backed up (copied) in step 3.

- a. Stop the manager.
- b. Return the image file storage folder backup (copy) to the folder specified during installation.

When using the default image file storage folder, restore to the following folder or directory:

[Windows Manager]

Installation_folder\SVROR\ScwPro\depot\Cloneimg

[Linux Manager]

/var/opt/FJSVscw-deploy/depot/CLONEIMG

When using a folder other than the default, restore to the new folder.

When the image file storage folder was not backed up, this step is not necessary.

- c. Restore the backed up (copied) certificates to the manager *installation_folder*.
Restore to the following folder or directory:

[Windows Manager]

Installation_folder\SVROR\Manager\etc\opt\FJSVssmgr\current\certificate

Installation_folder\SVROR\Manager\etc\opt\FJSVrcxdm\certificate

Installation_folder\SVROR\Manager\sys\apache\conf\ssl.crt

Installation_folder\SVROR\Manager\sys\apache\conf\ssl.key

[Linux Manager]

/etc/opt/FJSVrcvmr/opt/FJSVssmgr/current/certificate

/etc/opt/FJSVrcvmr/sys/apache/conf/ssl.crt

/etc/opt/FJSVrcvmr/sys/apache/conf/ssl.key

d. Restore the information that was backed up during preparations.

- Port number settings

Change the port numbers based on the information that was backed up during preparations.

For details on how to change port numbers, refer to "8.2 Changing Port Numbers" in the "User's Guide VE".

When the port number has not been changed from the default, this step is not necessary.

- Batch files and script files for event-related functions

Restore them by replacing the following file.

[Windows Manager]

Installation_folder\SVROR\Manager\etc\trapop.bat

[Linux Manager]

/etc/opt/FJSVrcvmr/trapop.sh

e. Start the manager.

For the methods for starting and stopping managers, refer to "2.1 Starting and Stopping the Manager" in the "Operation Guide VE".



Note

Take caution regarding the following when operating managers in clusters.

- Restoring the image file storage folder and certificates should be performed on shared disks are mounted on the primary node.
- Restoration of batch files and script files for event-related functions should be performed on both nodes.

6. User Account Settings

Using the information recorded during preparations, perform setting of user accounts using the ROR console.

For details on how to configure user accounts, refer to "Chapter 5 Managing User Accounts" in the "User's Guide VE".

7. Edit System Configuration Files

Based on the environment created for the earlier version, edit the system configuration file (CSV format) exported in step 2.

Change the operation column of all resources to "new".

When upgrading from RCVE V2.2.2 or later, do not change the operation column of resources contained in the following sections to "new":

- ServerAgent
- ServerVMHost
- Memo

For how to edit system configuration files (CVS format), refer to the "ServerView Resource Coordinator VE Setup Guide".



Note

When the spare server information is configured, use the following procedure to delete the spare server information.

In the [SpareServer] section, set [operation] as a hyphen ("-").

8. Creating an Environment of This Version

Import the system configuration file and create an environment of this version.

Use the following procedure to configure an environment of this version.

- a. Import of the system configuration file

Import the edited system configuration file.

For the import method, refer to "12.2 Importing the System Configuration File" in the "User's Guide VE".

b. Register the Agent

Using the information recorded during preparations, perform agent registration using the ROR console. Perform agent registration with the OS of the managed server booted.

For details on registering agents, refer to "[Chapter 7 Installing Software and Registering Agents on Managed Servers](#)".

After completing agent registration, use the ROR console to check that all physical OS's and VM hosts are displayed. When there are VM hosts (with VM guests) registered, check that all VM guests are displayed.

c. Spare Server Information Settings

Using the information recorded during preparations, perform registration of spare server information using the ROR console. For registration of spare server information, refer to "18.2 Server Switchover Settings" of the "User's Guide VE".

d. Registration of Labels, Comments, and Contact Information

When label, comment, and contact information has been registered, change the contents of the operation column of the system configuration file (CSV format) that were changed to "new" in step 6. back to hyphens ("-"), and change the contents of the operation column of resources contained in the [Memo] section to "new".

For how to edit system configuration files (CVS format), refer to the "ServerView Resource Coordinator VE Setup Guide". Import the edited system configuration file.

For the import method, refer to "12.2 Importing the System Configuration File" in the "User's Guide VE".

9. Set Maintenance Mode

Using the information recorded during preparation, place the managed servers placed into maintenance mode into maintenance mode again.

For maintenance mode settings, refer to "Appendix C Maintenance Mode" of the "User's Guide VE".



Note

When using backup system images or collecting cloning images without upgrading agents, either reboot managed servers after the manager upgrade is completed, or restart the related services.

For restarting the related services, refer to "5.2 Agent" in the "ServerView Resource Coordinator VE Setup Guide".

E.3 Agent

This section explains the upgrading of agents.

Upgrading of agents is not mandatory even when managers have been upgraded to this version. Perform upgrades if necessary.

Transferred Data

Before upgrading, note that the following agent resources are transferred:

- Definition files of the network parameter auto-configuration function (when the network parameter auto-configuration function is being used)

[Windows] [Hyper-V]

Installation_folder\Agent\etc\event_script folder

Installation_folder\Agent\etc\ipaddr.conf file

Installation_folder\Agent\etc\ipaddr.conf file

[Linux] [VMware] [Xen] [KVM]

/etc/opt/FJSVrcxat/event_script directory

/etc/opt/FJSVnrmp/lan/ipaddr.conf file

/etc/FJSVrcx.conf file

[Solaris]

There is no resource to transfer.

Data and work files which are transferred during upgrade installation are stored in the following folder. Ensure that the folder is not deleted until after the upgrade is complete.

[Windows] [Hyper-V]
32bit(x86) OS
Drive_name\Program Files\RCVE-upgradedata
64bit(x64) OS
Drive_name\Program Files (x86)\RCVE-upgradedata

[Linux] [VMware] [Xen] [KVM]
/var/opt/RCVE-upgradedata

[Solaris]
/var/opt/RCVE-upgradedata

Preparations

Perform the following preparations and checks before upgrading:

- Check that the environment is one in which agents of this version can be operated.
For the operational environment, refer to "2.4 Software Environment" and "2.5 Hardware Environment" of the "Design Guide VE".
- To enable recovery in case there is unexpected trouble during the upgrade process, back up the folders and files listed in "Transferred Data" to a folder other than the agent installation folder.

Upgrade using Upgrade Installation

When performing upgrade installation from V2.1.1 of agents in Windows environments, upgrade installation can be performed using the installer of this version.

Use the following procedure to upgrade agents of earlier versions to agents of this version on all of the managed servers that are being upgraded.



- Do not perform any other operations with Resource Orchestrator until the upgrade is completed.
- Perform upgrading of agents after upgrading of managers is completed.
- In the event that upgrade installation fails, please resolve the cause of the failure and perform upgrade installation again. If the problem cannot be resolved and upgrade installation fails again, please contact Fujitsu technical staff.
- When performing an upgrade installation, please do not access the installation folder of the earlier version or any of the files and folders inside it using the command prompt, Explorer, or an editor.
While it is being accessed, attempts to perform upgrade installation will fail.
If upgrade installation fails, stop accessing the files or folders and then perform the upgrade installation again.
- When stopping the upgrade and restoring the earlier version, please re-install the agent of the earlier version and then replace the information that was backed up during the preparations.
When performing restoration and an agent of this version or an earlier version has been installed, please uninstall it.
After restoration, please delete the folder containing the backed up assets.
- Upgrade installation will delete patches that were applied to the earlier version.

[Linux]

When the PATH variable has not been configured to enable execution of UpdateAdvisor (Middleware) commands from a user-defined location, performing upgrade installation will delete any patches that have been applied to the old version, but it will not delete product information or component information. Refer to the UpdateAdvisor (Middleware) manual and delete software and component information from the applied modification checklist.

1. Upgrade Installation

[Windows] [Hyper-V]

Refer to "2.2.2 Installation [Windows] [Hyper-V]", and execute the Resource Orchestrator installer.

The Resource Orchestrator setup window will be displayed. Check the contents of the license agreement, etc. and then click <Yes>.

The setting information that will be taken over from the earlier version will be displayed. Please check it and then click <Install>. Upgrade installation will begin.

[Linux] [VMware] [Xen] [KVM]

Refer to "2.2.3 Installation [Linux] [VMware] [Xen] [KVM] [Oracle VM]", and execute the Resource Orchestrator installer.

Check the contents of the license agreement, etc. and then enter "y".

The setting information that will be taken over from the earlier version will be displayed. Please check it and then enter "y". Upgrade installation will begin.

[Solaris]

Refer to "2.2.4 Installation [Solaris]", and execute the Resource Orchestrator installer.

Check the contents of the license agreement, etc. and then enter "y". Upgrade installation will begin.

Note

- After upgrading agents, use the ROR console to check if the upgraded managed servers are being displayed correctly.
- Updating of system images and cloning images is advised after agents have been upgraded.
- When upgrade installation is conducted on SUSE Linux Enterprise Server, upgrade installation will be conducted successfully even if the following message is displayed.

insserv: Warning, current runlevel(s) of script `scwagent' overwrites defaults.

2. Set Maintenance Mode

When server switchover settings have been performed for managed servers, place them into maintenance mode.

When managed servers are set as spare servers, place the managed servers set as spare servers into maintenance mode.

3. Backing up (copying) of Network Parameter Auto-configuration Function Definition Files

When using the network parameter auto-configuration function during deployment of cloning images, back up (copy) the following folders and files to a location other than the agent installation folder.

[Windows] [Hyper-V]

Installation_folder\Agent\etc\event_script folder

Installation_folder\Agent\etc\ipaddr.conf file

Installation_folder\Agent\etc\ipaddr.conf file

[Linux] [VMware] [Xen] [KVM]

/etc/opt/FJSVrcxat/event_script directory

/etc/opt/FJSVnrmp/lan/ipaddr.conf file

/etc/FJSVrcx.conf file

[Solaris]

There is no definition file to back up.

4. Restoration of Network Parameter Auto-configuration Function Definition Files

When using the network parameter auto-configuration function during deployment of cloning images, restore the definition files that were backed up (copied) in step 3. When 3. was not performed, this step is not necessary.

a. Stop agents.

For the method for stopping agents, refer to "2.2 Starting and Stopping the Agent" in the "Operation Guide VE".

b. Restore the definition file.

Restore the folders and files backed up (copied) in step 3. to the following locations in the installation folder of this version:

[Windows] [Hyper-V]

Installation_folder\Agent\etc\event_script folder

Installation_folder\Agent\etc\ipaddr.conf file

Installation_folder\Agent\etc\ipaddr.conf file

[Linux] [VMware] [Xen] [KVM]
/etc/opt/FJSVrcxat/event_script directory
/etc/opt/FJSVnrmplan/ipaddr.conf file
/etc/FJSVrcx.conf file

[Solaris]

There is no definition file to restore.

c. Start agents.

For the method for starting agents, refer to "2.2 Starting and Stopping the Agent" in the "Operation Guide VE".

5. Release Maintenance Mode

Release the maintenance mode of managed servers placed into maintenance mode in step 2.

 Note

- After upgrading agents, use the ROR console to check if the upgraded managed servers are being displayed correctly.
- Updating of system images and cloning images is advised after agents have been upgraded.

Manual Upgrade

Use the following procedure to upgrade agents of earlier versions to agents of this version on all of the managed servers that are being upgraded.

 Note

- Do not perform any other operations with Resource Orchestrator until the upgrade is completed.
- Perform upgrading of agents after upgrading of managers is completed.
- When using the network parameter auto-configuration function during deployment of cloning images, specify the same installation folder for agents of the earlier version and those of this version.

1. Set Maintenance Mode

- When server switchover settings have been performed for managed servers
Place them into maintenance mode.
- When managed servers are set as spare servers
Place the managed servers set as spare servers into maintenance mode.

2. Backing up (copying) of Network Parameter Auto-configuration Function Definition Files

When using the network parameter auto-configuration function during deployment of cloning images, back up (copy) the following folders and files to a location other than the agent installation folder.

[Windows] [Hyper-V]
Installation_folder\Agent\etc\event_script folder
Installation_folder\Agent\etc\ipaddr.conf file
Installation_folder\Agent\etc\ipaddr.conf file

[Linux] [VMware] [Xen] [KVM]
/etc/opt/FJSVrcxat/event_script directory
/etc/opt/FJSVnrmplan/ipaddr.conf file
/etc/FJSVrcx.conf file

[Solaris]

There is no definition file to back up.

3. Uninstall RCVE Agents

Refer to the "ServerView Resource Coordinator VE Installation Guide", and uninstall the agents.

4. Install ROR VE Agents

Install ROR VE agents.

For installation, refer to "[2.2 Agent Installation](#)".

5. Restoration of Network Parameter Auto-configuration Function Definition Files

When using the network parameter auto-configuration function during deployment of cloning images, restore the definition files that were backed up (copied) in step 2. When 2. was not performed, this step is not necessary.

a. Stop agents.

For the method for stopping agents, refer to "2.2 Starting and Stopping the Agent" in the "Operation Guide VE".

b. Restore the definition file.

Restore the folders and files backed up (copied) in step 2. to the following locations in the installation folder of this version:

[Windows] [Hyper-V]

Installation_folder\Agent\etc\event_script folder

Installation_folder\Agent\etc\ipaddr.conf file

Installation_folder\Agent\etc\ipaddr.conf file

[Linux] [VMware] [Xen] [KVM]

/etc/opt/FJSVrcxat/event_script directory

/etc/opt/FJSVnrmp/lan/ipaddr.conf file

/etc/FJSVrcx.conf file

[Solaris]

There is no definition file to restore.

c. Start agents.

For the method for starting agents, refer to "2.2 Starting and Stopping the Agent" in the "Operation Guide VE".

6. Release Maintenance Mode

Release the maintenance mode of managed servers placed into maintenance mode in step 1.



Note

- After upgrading agents, use the ROR console to check that the upgraded managed servers are being displayed correctly.
- Updating of system images and cloning images is advised after agents have been upgraded.

Upgrading with ServerView Update Manager or ServerView Update Manager Express

Upgrade installation can be performed with ServerView Update Manager or ServerView Update Manager Express when upgrading to this version from ROR V2.2.2 or later, or RCVE V2.2.2 or later.

Refer to the manual of ServerView Update Manager or ServerView Update Manager Express for the procedure.



Note

- To upgrade with ServerView Update Manager, the server to be upgrade must be managed by ServerView Operations Manager.
- OS's and hardware supported by ServerView Update Manager or ServerView Update Manager Express can be updated.
- For Linux or VMware, the installed ServerView Agents must be at least V5.01.08.
- Do not perform any other operations with Resource Orchestrator until the upgrade is completed.
- Perform upgrading of agents after upgrading of managers is completed.

- In the event that upgrade installation fails, please resolve the cause of the failure and perform upgrade installation again. If the problem cannot be resolved and upgrade installation fails again, please contact Fujitsu technical staff.
- When performing an upgrade installation, please do not access the installation folder of the earlier version or any of the files and folders inside it using the command prompt, Windows Explorer, or an editor. While it is being accessed, attempts to perform upgrade installation will fail.
- If upgrade installation fails, stop accessing the files or folders and then perform the upgrade installation again.
- When stopping the upgrade and restoring the earlier version, please re-install the agent of the earlier version and then replace the information that was backed up during the preparations.

When performing restoration and an agent of this version or an earlier version has been installed, please uninstall it.

After restoration, please delete the folder containing the backed up assets.

- Upgrade installation will delete patches that were applied to the earlier version.

[Linux]

- When the PATH variable has not been configured to enable execution of UpdateAdvisor (Middleware) commands from a user-defined location, performing upgrade installation will delete any patches that have been applied to the old version, but it will not delete product information or component information. Refer to the UpdateAdvisor (Middleware) manual and delete software and component information from the applied modification checklist.
- After upgrading agents, use the ROR console to check that the upgraded managed servers are being displayed correctly.
- Updating of system images and cloning images is advised after agents have been upgraded.

E.4 Client

This section explains the upgrading of clients.

Web browsers are used as clients of this version.

When upgrading clients, it is necessary to clear the Web browser's cache (temporary internet files).

Use the following procedure to clear the Web browser's cache.

1. [Select [Tools]-[Internet Options]].

The [Internet Options] dialog is displayed.

2. Select the [General] tab on the [Internet Options] dialog.

3. Select <Delete> in the "Browsing history" area.

The [Delete Browsing History] dialog is displayed.

4. Check the [Temporary Internet files] checkbox in the [Delete Browsing History] dialog and unselect the other checkboxes.

5. Click <Delete>.

The Web browser's cache is cleared.

E.5 HBA address rename setup service

This section explains upgrading of the HBA address rename setup service.

Transferred Data

There is no HBA address rename setup service data to transfer when upgrading from an earlier version to this version.

Preparations

Perform the following preparations and checks before upgrading:

- Check that the environment is one in which agents of this version can be operated.

For the operational environment, refer to "2.4 Software Environment" and "2.5 Hardware Environment" of the "Design Guide VE".

Upgrade using Upgrade Installation

When upgrading to this version from RCVE V2.2.2, upgrade can be performed using upgrade installation. Perform the upgrade using the following procedure:



- Do not perform any other operations with Resource Orchestrator until the upgrade is completed.
- Perform upgrading of the HBA address rename setup service after upgrading of managers is completed.
- In the event that upgrade installation fails, please resolve the cause of the failure and perform upgrade installation again. If the problem cannot be resolved and upgrade installation fails again, please contact Fujitsu technical staff.
- When performing an upgrade installation, please do not access the installation folder of the earlier version or any of the files and folders inside it using the command prompt, Explorer, or an editor.
While it is being accessed, attempts to perform upgrade installation will fail.
If upgrade installation fails, stop accessing the files or folders and then perform the upgrade installation again.
- When stopping the upgrade and restoring the earlier version, please re-install the HBA address rename setup service of the earlier version.
When performing restoration and the HBA address rename setup service of this version or an earlier version has been installed, please uninstall it.
- Upgrade installation will delete patches that were applied to the earlier version.

[Linux]

When the PATH variable has not been configured to enable execution of UpdateAdvisor (Middleware) commands from a user-defined location, performing upgrade installation will delete any patches that have been applied to the old version, but it will not delete product information or component information. Refer to the UpdateAdvisor (Middleware) manual and delete software and component information from the applied modification checklist.

1. Upgrade Installation

[Windows]

Refer to "2.3.2 Installation [Windows]", and execute the Resource Orchestrator installer.

The Resource Orchestrator setup window will be displayed. Check the contents of the license agreement, etc. and then click <Yes>.

The setting information that will be taken over from the earlier version will be displayed. Please check it and then click <Install>.

Upgrade installation will begin.

[Linux]

Refer to "2.3.3 Installation [Linux]", and execute Resource Orchestrator installer.

The Resource Orchestrator setup window will be displayed. Check the contents of the license agreement, etc. and then enter "y".

A message checking about performing the upgrade installation will be displayed.

To perform upgrade installation, enter "y". Upgrade installation will begin.

2. Display the Resource Orchestrator Setup Completion Window [Windows]

When using the HBA address rename setup service immediately after configuration, check the [Yes, launch it now.] checkbox.

Click <Finish> and close the window. If the checkbox was checked, the HBA address rename setup service will be started after the window is closed.

3. Start the HBA address rename setup Service

[Windows]

When the HBA address rename setup service was not started in step 2., refer to "Chapter 6 Settings for the HBA address rename Setup Service", and start the HBA address rename setup service.

[Linux]

Refer to "[Chapter 6 Settings for the HBA address rename Setup Service](#)", and start the HBA address rename setup service.

Appendix F Compatibility with Earlier Versions

This appendix explains compatibility with earlier versions of Resource Orchestrator.

F.1 Maintaining Compatibility with Earlier Versions

This section explains how to maintain compatibility with earlier versions of Resource Orchestrator.

- [F.1.1 Editing the Home Messages](#)

F.1.1 Editing the Home Messages

This section explains how to edit the information displayed in the lower part of the Home window on the ROR console.



The definition files for display control of VM pool attribute information provided to remain compatible between V3.0.0 and this version of Resource Orchestrator.

The information is displayed for all users.

Directly edit the file in which the information is described.

Location of Information Files

[Windows]

C:\Fujitsu\ROR\SVROR\Manager\rails\public\man\en\VirtualEdition

C:\Fujitsu\ROR\SVROR\Manager\rails\public\man\ja\VirtualEdition

C:\Fujitsu\ROR\SVROR\Manager\rails\public\man\en\CloudEdition

C:\Fujitsu\ROR\SVROR\Manager\rails\public\man\ja\CloudEdition

[Linux]

/opt/FJSVrcvmr/rails/public/man/en/VirtualEdition

/opt/FJSVrcvmr/rails/public/man/ja/VirtualEdition

/opt/FJSVrcvmr/rails/public/man/en/CloudEdition

/opt/FJSVrcvmr/rails/public/man/ja/CloudEdition

File Name

home.html

Character Code

UTF-8

Default Value

YYYY-MM-DD, Information 1

Settings

Date

The format for date is not specified.

When the date will not be displayed, "<th></th>" must be entered.

Message

The message must be entered between "<td>" and "</td>".

Note

Collect backups of HTML files after editing the information.

Example

home.html

```
<!-- Information Area -->
<table class="text_left_span" border="0">
  <tr>
    <th>
      YYYY-MM-DD
    </th>
    <td>
      Information 2
    </td>
  </tr>
  <tr>
    <th>
      YYYY-MM-DD
    </th>
    <td>
      Information 1
    </td>
  </tr>
</table>
<!-- Information Area -->
```

Point

The contact information can be notified to all users, using the information area.

- Configure the following settings to edit the information on the ROR console.
 1. Delete the current definition file in which the information is described.

[Windows]

C:\Fujitsu\ROR\SVROR\Manager\rails\public\man\en\VirtualEdition

C:\Fujitsu\ROR\SVROR\Manager\rails\public\man\ja\VirtualEdition

C:\Fujitsu\ROR\SVROR\Manager\rails\public\man\en\CloudEdition

C:\Fujitsu\ROR\SVROR\Manager\rails\public\man\ja\CloudEdition

[Linux]

/opt/FJSVrcvmr/rails/public/man/en/VirtualEdition

/opt/FJSVrcvmr/rails/public/man/ja/VirtualEdition

/opt/FJSVrcvmr/rails/public/man/en/CloudEdition

/opt/FJSVrcvmr/rails/public/man/ja/CloudEdition

Note

After deleting the definition files in which the information is described, the information will not be displayed. If the currently displayed information is necessary, back up the definition file and restore the information using the information edit operation.

2. Log out from the ROR console.
3. Restart your browser and log in to the ROR console.

 Note

If the operation is changed to edit the information using the ROR console, the information files cannot be edited directly.

For details on how to edit the information using the ROR console, refer to "2.1 Editing the Home Messages" in the "User's Guide VE".

Glossary

access path

A logical path configured to enable access to storage volumes from servers.

active mode

The state where a managed server is performing operations.

Managed servers must be in active mode in order to use Auto-Recovery.

Move managed servers to maintenance mode in order to perform backup or restoration of system images, or collection or deployment of cloning images.

active server

A physical server that is currently operating.

admin client

A terminal (PC) connected to an admin server, which is used to operate the GUI.

admin LAN

A LAN used to manage resources from admin servers.

It connects managed servers, storage, and network devices.

admin server

A server used to operate the manager software of Resource Orchestrator.

affinity group

A grouping of the storage volumes allocated to servers. A function of ETERNUS.

Equivalent to the LUN mapping of EMC.

agent

The section (program) of Resource Orchestrator that operates on managed servers.

Auto-Recovery

A function which continues operations by automatically switching over the system image of a failed server to a spare server and restarting it in the event of server failure.

This function can be used when managed servers are in a local boot configuration, SAN boot configuration, or a configuration such as iSCSI boot where booting is performed from a disk on a network.

- When using a local boot configuration

The system is recovered by restoring a backup of the system image of the failed server onto a spare server.

- When booting from a SAN or a disk on a LAN

The system is restored by having the spare server inherit the system image on the storage.

Also, when a VLAN is set for the public LAN of a managed server, the VLAN settings of adjacent LAN switches are automatically switched to those of the spare server.

BACS (Broadcom Advanced Control Suite)

An integrated GUI application (comprised from applications such as BASP) that creates teams from multiple NICs, and provides functions such as load balancing.

Basic Mode

A function that can be used by configuring a Cloud Edition license after installing ROR VE.

BASP (Broadcom Advanced Server Program)

LAN redundancy software that creates teams of multiple NICs, and provides functions such as load balancing and failover.

blade server

A compact server device with a thin chassis that can contain multiple server blades, and has low power consumption. As well as server blades, LAN switch blades, management blades, and other components used by multiple server blades can be mounted inside the chassis.

blade type

A server blade type.
Used to distinguish the number of server slots used and servers located in different positions.

BladeViewer

A GUI that displays the status of blade servers in a style similar to a physical view and enables intuitive operation. BladeViewer can also be used for state monitoring and operation of resources.

BMC (Baseboard Management Controller)

A Remote Management Controller used for remote operation of servers.

boot agent

An OS for disk access that is distributed from the manager to managed servers in order to boot them when the network is started during image operations.

CA (Channel Adapter)

An adapter card that is used as the interface for server HBAs and fibre channel switches, and is mounted on storage devices.

chassis

A chassis used to house server blades and partitions.
Sometimes referred to as an enclosure.

cloning

Creation of a copy of a system disk.

cloning image

A backup of a system disk, which does not contain server-specific information (system node name, IP address, etc.), made during cloning.
When deploying a cloning image to the system disk of another server, Resource Orchestrator automatically changes server-specific information to that of the target server.

Cloud Edition

The edition which can be used to provide private cloud environments.

Domain

A system that is divided into individual systems using partitioning. Also used to indicate a partition.

DR Option

The option that provides the function for remote switchover of servers or storage in order to perform disaster recovery.

end host mode

This is a mode where the uplink port that can communicate with a downlink port is fixed at one, and communication between uplink ports is blocked.

environmental data

Measured data regarding the external environments of servers managed using Resource Orchestrator.
Measured data includes power data collected from power monitoring targets.

ESC (ETERNUS SF Storage Cruiser)

Software that supports stable operation of multi-vendor storage system environments involving SAN, DAS, or NAS. Provides configuration management, relation management, trouble management, and performance management functions to integrate storage related resources such as ETERNUS.

Express

The edition which provides server registration, monitoring, and visualization.

FC switch (Fibre Channel Switch)

A switch that connects Fibre Channel interfaces and storage devices.

fibrec channel switch blade

A fibre channel switch mounted in the chassis of a blade server.

global zone

The actual OS that is used for a Solaris container.
A Solaris environment that has been installed on a physical server.

GLS (Global Link Services)

Fujitsu network control software that enables high availability networks through the redundancy of network transmission channels.

GSPB (Giga-LAN SAS and PCI_Box Interface Board)

A board which mounts onboard I/O for two partitions and a PCIe (PCI Express) interface for a PCI box.

GUI (Graphical User Interface)

A user interface that displays pictures and icons (pictographic characters), enabling intuitive and easily understandable operation.

HA (High Availability)

The concept of using redundant resources to prevent suspension of system operations due to single problems.

hardware initiator

A controller which issues SCSI commands to request processes.
In iSCSI configurations, NICs fit into this category.

hardware maintenance mode

In the maintenance mode of PRIMEQUEST servers, a state other than Hot System Maintenance.

HBA (Host Bus Adapter)

An adapter for connecting servers and peripheral devices.
Mainly used to refer to the FC HBAs used for connecting storage devices using Fibre Channel technology.

HBA address rename setup service

The service that starts managed servers that use HBA address rename in the event of failure of the admin server.

HBAAR (HBA address rename)

I/O virtualization technology that enables changing of the actual WWN possessed by an HBA.

host affinity

A definition of the server HBA that is set for the CA port of the storage device and the accessible area of storage.

It is a function for association of the Logical Volume inside the storage which is shown to the host (HBA) that also functions as security internal to the storage device.

Hyper-V

Virtualization software from Microsoft Corporation.

Provides a virtualized infrastructure on PC servers, enabling flexible management of operations.

I/O virtualization option

An optional product that is necessary to provide I/O virtualization.

The WWNN address and MAC address provided is guaranteed by Fujitsu Limited to be unique.

Necessary when using HBA address rename.

IBP (Intelligent Blade Panel)

One of operation modes used for PRIMERGY switch blades.

This operation mode can be used for coordination with ServerView Virtual I/O Manager (VIOM), and relations between server blades and switch blades can be easily and safely configured.

ILOM (Integrated Lights Out Manager)

The name of the Remote Management Controller for SPARC Enterprise T series servers.

image file

A system image or a cloning image. Also a collective term for them both.

IPMI (Intelligent Platform Management Interface)

IPMI is a set of common interfaces for the hardware that is used to monitor the physical conditions of servers, such as temperature, power voltage, cooling fans, power supply, and chassis.

These functions provide information that enables system management, recovery, and asset management, which in turn leads to reduction of overall TCO.

IQN (iSCSI Qualified Name)

Unique names used for identifying iSCSI initiators and iSCSI targets.

iRMC (integrated Remote Management Controller)

The name of the Remote Management Controller for Fujitsu's PRIMERGY servers.

iSCSI

A standard for using the SCSI protocol over TCP/IP networks.

LAN switch blades

A LAN switch that is mounted in the chassis of a blade server.

license

The rights to use specific functions.

Users can use specific functions by purchasing a license for the function and registering it on the manager.

link aggregation

Function used to multiplex multiple ports and use them as a single virtual port.

With this function, if one of the multiplexed ports fails its load can be divided among the other ports, and the overall redundancy of ports improved.

logical volume

A logical disk that has been divided into multiple partitions.

LSB (Logical System Board)

A system board that is allocated a logical number (LSB number) so that it can be recognized from the domain, during domain configuration.

maintenance mode

The state where operations on managed servers are stopped in order to perform maintenance work.

In this state, the backup and restoration of system images and the collection and deployment of cloning images can be performed.

However, when using Auto-Recovery it is necessary to change from this mode to active mode. When in maintenance mode it is not possible to switch over to a spare server if a server fails.

managed server

A collective term referring to a server that is managed as a component of a system.

management blade

A server management unit that has a dedicated CPU and LAN interface, and manages blade servers.

Used for gathering server blade data, failure notification, power control, etc.

Management Board

The PRIMEQUEST system management unit.

Used for gathering information such as failure notification, power control, etc. from chassis.

manager

The section (program) of Resource Orchestrator that operates on admin servers.

It manages and controls resources registered with Resource Orchestrator.

virtual switch

A function provided by server virtualization software to manage networks of VM guests as virtual LAN switches.

The relationships between the virtual NICs of VM guests and the NICs of the physical servers used to operate VM hosts can be managed using operations similar to those of the wiring of normal LAN switches.

VLAN (Virtual LAN)

A splitting function, which enables the creation of virtual LANs (seen as differing logically by software) by grouping ports on a LAN switch.

Using a Virtual LAN, network configuration can be performed freely without the need for modification of the physical network configuration.

VLAN ID

A number (between 1 and 4,095) used to identify VLANs.

Null values are reserved for priority tagged frames, and 4,096 (FFF in hexadecimal) is reserved for mounting.

VM (Virtual Machine)

A virtual computer that operates on a VM host.

VM guest

A virtual server that operates on a VM host, or an OS that is operated on a virtual machine.

VM Home Position

The VM host that is home to VM guests.

VM host

A server on which server virtualization software is operated, or the server virtualization software itself.

VM maintenance mode

One of the settings of server virtualization software, that enables maintenance of VM hosts.

For example, when using high availability functions (such as VMware HA) of server virtualization software, by setting VM maintenance mode it is possible to prevent the moving of VM guests on VM hosts undergoing maintenance.

For details, refer to the manuals of the server virtualization software being used.

VM management software

Software for managing multiple VM hosts and the VM guests that operate on them.

Provides value adding functions such as movement between the servers of VM guests (migration).

VMware

Virtualization software from VMware Inc.

Provides a virtualized infrastructure on PC servers, enabling flexible management of operations.

Web browser

A software application that is used to view Web pages.

WWN (World Wide Name)

A 64-bit address allocated to an HBA.

Refers to a WWNN or a WWPN.

WWNN (World Wide Node Name)

The WWN set for a node.

The Resource Orchestrator HBA address rename sets the same WWNN for the fibre channel port of the HBA.

WWPN (World Wide Port Name)

The WWN set for a port.

The Resource Orchestrator HBA address rename sets a WWPN for each fibre channel port of the HBA.

WWPN zoning

The division of ports into zones based on their WWPN, and setting of access restrictions between different zones.

Xen

A type of server virtualization software.

XSB (eXtended System Board)

Unit for domain creation and display, composed of physical components.

XSCF (eXtended System Control Facility)

The name of the Remote Management Controller for SPARC Enterprise M series servers.

zoning

A function that provides security for Fibre Channels by grouping the Fibre Channel ports of a Fibre Channel switch into zones, and only allowing access to ports inside the same zone.